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Business Wire, File 610 (Mar 1999 - present)  
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Set#	Query
L1	float\$3 with rate\$1 with note\$
L2	variable with rate with obligation\$
L3	taxable with float\$3 with rate\$1 with note\$

L4	debt adj3 obligation\$2
L5	(tax adj exempt) with bond
L6	municipality
L7	collateral
L8	purchas\$3 with asset\$2
L9	variable adj rate adj demand adj obligation\$
L10	security with interest\$1
L11	(interest investment) with default
L12	l1 and l2 and l5 and l6 and l7 and l8 and l10 and l11
L13	l1 or l3
L14	l2 or l4 or l9
L15	l10 or l11
L16	l13 and l14 and l15
L17	l5 and l16
L18	l6 and l16
L19	l7 and l16
L20	l8 and l16
L21	l5 and l6 and l7 and l8
L22	l21 and l16

106/9/1 (Item 1 from file: 16)

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Sovereign Bancorp, Inc. Announces 2004 Third Quarter Net Income of \$83 Million, Record Operating Income of \$143 Million and Cash Earnings of \$162 Million.

PR Newswire , p NA

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Financial Highlights -- Net income of \$82.5 million, including a special debt redemption charge of \$42.6 million after-tax and a merger and integration charge of \$18.2 million after-tax, for the third quarter of 2004, as compared to \$109 million a year ago. -- Earnings per share, including the above mentioned charges of \$.18 per share, for the third

quarter of 2004 were \$.24 per share, as compared to \$.37 per share in same quarter of 2003. -- Operating earnings in the third quarter of 2004 were \$143 million, up 31% from \$109 million a year ago. Operating earnings per share were \$.42 per share, up 14% from \$.37 per share in the same quarter of 2003. -- Cash earnings for the third quarter of 2004 were \$162 million, up 30% from \$124 million in the same quarter a year ago. Cash earnings per share were \$.47 per share, up 12% from \$.42 per share in the third quarter of 2003. -- Consumer and Commercial loans, excluding the impact of acquisitions, increased 28% and 9%, respectively, from the third quarter of 2003. -- Core deposits increased 21% from the third quarter of 2003 and 13% from the second quarter of 2004. Excluding acquisitions, core deposits increased 6% from the third quarter of 2003. -- Reduced the investment portfolio by \$1.1 billion during the quarter. -- Consumer Banking and Commercial Banking fee revenues were \$63 million and \$32 million, respectively, each up 17% from a year earlier. -- The provision for loan losses was \$25.0 million in this quarter. The provision exceeded net charge-offs by \$4.5 million in this quarter. -- Non-performing assets decreased to .30% of total assets at September 30, 2004, versus .36% at June 30, 2004. Non-performing assets declined \$7.3 million to \$169 million. -- Equity to assets ratio was 8.64% at September 30, 2004, compared to 7.72% at September 30, 2003 and 7.84% at June 30, 2004. The Tier 1 leverage ratio was 6.56% at September 30, 2004. -- Sovereign continues to be positioned to benefit from higher interest rates. -- Successfully completed the acquisition of Seacoast Financial Services Corporation on July 23, 2004. Systems conversion successfully completed by October 17th.

Sovereign Bancorp, Inc. ("Sovereign"), parent company of Sovereign Bank ("Bank"), today reported third quarter 2004 net income after non-recurring charges of \$60.8 million, or \$.18 per share, of \$82.5 million, or \$.24 per diluted share, as compared to \$109 million, or \$.37 per diluted share, for the third quarter of 2003. Net income in the third quarter of 2004 included the previously announced after-tax merger and integration charge of \$18.2 million, or \$.05 per share, associated with the acquisition of Seacoast Financial Services Corporation ("Seacoast") and an after-tax charge of \$42.6 million, or \$.13 per share, in connection with the early redemption of \$500 million of high-cost debt.

Excluding these charges, operating earnings were up 31% to \$143 million as compared to \$109 million for the third quarter of 2003. Operating earnings per share were up 14% to \$.42 per share from \$.37 per share during the third quarter of 2003. Cash earnings increased to \$162 million, or \$.47 per diluted share, as compared to \$124 million, or \$.42 per diluted share, for the third quarter of 2003. A reconciliation of net income, operating earnings and cash earnings, as well as the related earnings per share amounts, is included in a later section of this release.

Commenting on results for the third quarter of 2004, Jay S. Sidhu, Sovereign's Chairman and Chief Executive Officer, said, "The third quarter was another strong quarter for Sovereign. We are pleased that the Federal Reserve has begun to increase short-term interest rates, as this immediately benefited our net interest income and should also drive net interest margin expansion in the fourth quarter. Commercial and consumer loans were up 9% and 28%, respectively, from the third quarter of 2003, excluding the impact of acquisitions; while core deposits were up 6%. Our credit quality again showed improvement during the quarter. Operating expenses are being held in check, as the only increases in expenses for the quarter were related to our acquisition of Seacoast. Lastly, we are pleased to welcome Seacoast's customers, shareholders and team members to Sovereign, as we successfully closed and converted this acquisition during the quarter."

September of this year marked the five-year anniversary of Sovereign's announcement of the Fleet/BankBoston branch acquisition, the largest banking divestiture in U.S. history. It consisted of 285 branches, \$12 billion in deposits and \$9 billion in loans. This acquisition enabled

Sovereign to enter the New England market with a very significant market share, ranking third in the region. Since Sovereign's successful integration in the third quarter of 2000, the annual growth rate in operating earnings per share has been 10%, and since 2001, Sovereign's operating earnings annual growth rate has been 25%. Since the third quarter of 2000, Sovereign's commercial and consumer loans have grown 14% and 20%, respectively, on average per year. Core deposits have grown 15% on average per year. Banking fees have increased 30% on average per year. Operating expenses have increased only 1.5% on average per year. Sovereign's efficiency ratio has decreased more than 500 basis points. Capital levels have improved substantially. Equity to assets has expanded 315 basis points to 8.64% at September 30, 2004. Tier 1 Leverage has expanded 356 basis points to 6.56% at September 30, 2004. Tangible common equity has expanded 315 basis points to 4.51% at September 30, 2004. In addition to dramatically improved capital levels, the quality of Sovereign's balance sheet has improved as Sovereign has removed most of the high-cost debt financing incurred in this transaction. "This acquisition transformed Sovereign into a high growth community-oriented commercial bank with a diversified loan portfolio, a low-cost deposit base and a very strong market position. It has substantially enhanced franchise and shareholder value. This is evidenced by a 145% appreciation in our stock price since October of 1999, outperforming a number of market indices including the DJIA, S&P 500, Bank Super regional, Bank NYSE and Thrift NYSE during that time period," commented Sidhu.

#### Net Interest Income and Margin

Sovereign reported net interest income of \$363 million for the third quarter of 2004, an increase of \$75.7 million, or 26% compared to the third quarter of 2003. On a linked-quarter basis, net interest income increased by \$30.9 million, or 9.3%, in spite of the fact that the company de-levered the investment portfolio by \$1.1 billion. As a result of higher short-term interest rates, commercial loan yields increased by 36 basis points and consumer loan yields increased by 10 basis points during the quarter. Most of Sovereign's variable rate consumer loans have repricing periods that lag rate changes by up to one quarter. Deposit costs increased by only 14 basis points in the third quarter.

During the quarter, Sovereign successfully redeemed \$500 million of 10.50% senior notes and replaced them with lower-cost, unsecured senior debt much more reflective of the financial strength of Sovereign today. The 10.50% senior **notes** that were redeemed carried a cost of approximately 8.18%, as \$400 million of the debt was swapped to **floating rate** at a cost of Libor + 550 basis points. Sovereign funded this redemption with cash on hand and a new two-year senior **note** issue of \$300 million at a **floating rate** of Libor + 33 basis points.

Net interest margin was 3.17% for the third quarter of 2004, compared to 3.22% in the second quarter of 2004 and 3.32% in the third quarter of 2003, primarily impacted by the flattening of the yield curve. Commenting on third quarter net interest margin, James D. Hogan, Sovereign's Chief Financial Officer, noted, "As we have previously stated, Sovereign's net interest income has benefited from the quarter's short-term interest rate hikes. However, meaningful net interest margin expansion requires 100 basis points or more of rate hikes, as replacement yields on new loan production are still lower than the assets running off due to the flattening of the yield curve. Our fourth quarter outlook for both net interest income and net interest margin is positive, as the fourth quarter will reflect a full quarter's benefit of three 25 basis point rate hikes by the Federal Reserve as well as the impact of our debt redemption, which was completed late in September."

#### Non-Interest Income

Sovereign's consumer and commercial banking fees generated record levels once again in the third quarter of 2004. Consumer banking fees increased by \$9.2 million, or 17%, compared to the same period in 2003.



The increase was driven principally by deposit fees, which increased by \$7.0 million to \$51.3 million. Commercial banking fees increased \$4.6 million to \$31.8 million, or 17%, over the same period a year ago driven by growth in loan fees. Consumer and commercial banking fees increased 8% and 4%, respectively, in the third quarter of 2004 as compared to second quarter 2004 levels. Excluding approximately \$3.7 million in revenue related to Seacoast, consumer and commercial banking fees increased 11.0% and 15.4%, respectively, over last year.

Mortgage banking revenues for the quarter were a loss of \$4.1 million, compared to revenues of \$16.4 million last quarter and \$17.5 million a year ago. Due to changes in prepayment speeds and interest rates, a servicing rights impairment charge of \$9.4 million was recorded in the third quarter of 2004. This compares to reversals of valuation reserve recorded in the second quarter of 2004 and the third quarter of 2003 of \$17.1 million and \$18.3 million, respectively. Hogan noted, "Excluding an impairment charge this quarter and reversals of the valuation reserve related to mortgage servicing rights in the previous comparable quarters, mortgage banking revenues were \$5.3 million in the third quarter of 2004 as compared to slight losses of \$.7 million in the second quarter of 2004 and \$.8 million in the third quarter of 2003." Mortgage banking results are summarized in the financial tables attached to this release. As of September 30, 2004, mortgage servicing rights, net of reserves of \$10.9 million, were \$74.0 million and our servicing portfolio was \$6.5 billion, with a capitalized cost of 114 basis points.

Sovereign has attempted in recent quarters to minimize fee income volatility by realizing gains on sales of investments to offset mortgage banking declines resulting from servicing right impairment charges, as these two revenue sources have characteristics that offset each other. This is evidenced by third quarter and second quarter 2004 combined revenue from mortgage banking revenue and securities gains of \$16.2 million and \$17.3 million, respectively.

#### Non-Interest Expense

G&A expenses for the quarter were \$238 million, up 5.8% from \$225 million in the second quarter and up 13% from \$211 million a year ago. Excluding operating expenses during the quarter of approximately \$18.0 million related to Seacoast, G&A expenses decreased \$5.0 million from the second quarter of 2004. Hogan stated, "In the third quarter, our efficiency ratio was 50.4% versus 49.2% in the second quarter of 2004 and 51.8% in the third quarter of 2003. Most of the increase we've seen in our efficiency ratio is a result of weak mortgage banking results, as well as the timing of systems conversions related to our acquisition of Seacoast. A portion of Seacoast was converted at closing on July 23, 2004, while a more significant portion was not converted until the weekend of October 15th. We have committed to improving our efficiency ratio by 100 basis points in 2004 and we are ahead of schedule in fulfilling that commitment."

Sovereign's effective tax rate declined in the third quarter to 17.2% on a GAAP basis due to reduced pre-tax income resulting from the debt redemption and Seacoast merger charges incurred during the quarter, which were both tax benefited at 35%. On an operating basis, Sovereign's effective tax rate was 25.8% in the third quarter. Sovereign's full-year 2004 effective tax rate is expected to be approximately 26% on an operating basis, since all of Sovereign's operating adjustments are tax benefited at 35%.

#### Franchise Growth

Sovereign's total loan portfolio increased during the third quarter by \$6.1 billion to \$35.3 billion, \$4.1 billion of which was a result of the Seacoast acquisition. Organic loan growth was \$2.0 billion during the quarter. Consumer loans have increased 28% over the third quarter of last year, while commercial loans have increased 9%, excluding the impact of acquisitions. Commercial and consumer loans now make up 38% and 39%, respectively, of the total loan portfolio. The following table depicts Sovereign's loan composition as of September 30, 2004 (\$ in millions):

Loan Category	Ending Balance	Q3 2004 Yield	Q2 2004 Yield	Q3 2004 % of Loans
Commercial	\$13,446	4.91%	4.55%	38.1%
Consumer Residential mortgage	13,857 7,959	5.10% 5.21%	5.00% 5.57%	39.3 22.6
Total	\$35,262	5.05%	4.90%	100%

Core deposits increased \$2.9 billion during the quarter to \$25.7 billion; excluding the Seacoast acquisition, core deposits grew \$468 million, or 8.2% annualized, during the quarter. Total deposits increased \$4.1 billion during the quarter to \$33.1 billion; \$3.6 billion of the increase was a result of the Seacoast acquisition. Time deposits account for only 22% of total deposits at September 30, 2004. The following table summarizes Sovereign's deposit position as of September 30, 2004 (\$ in millions):

#### Deposit

Category	Ending Balance	Q3 2004 Cost	Q2 2004 Cost	Q3 2004 % of Total Deposits
Checking Other core	\$13,669	0.57%	0.40 %	41.3%
(MMDA & Savings)	12,075	0.97%	0.80 %	36.
Total Core	25,744	0.76%	0.59%	77.8
Time deposits	7,358	2.04%	2.04%	22.2
Total deposits	\$33,102	1.04%	.90%	100%

#### Asset Quality

Sovereign's credit quality continued to improve in the third quarter of 2004. Non-performing assets ("NPAs") declined \$7 million during the quarter to \$169 million at September 30, 2004; this includes \$17.5 million of non-performing loans added as a result of the Seacoast acquisition. NPAs to total assets decreased to .30% during the third quarter of 2004, compared to .36% at June 30, 2004. Sovereign's provision for loan losses was \$25.0 million this quarter compared to \$32.0 million in the second quarter and \$36.6 million in the third quarter of 2003. The allowance for loan losses to total loans decreased to 1.15% at September 30, 2004, as compared to 1.21% at June 30, 2004 and 1.31% at September 30, 2003, due to improved credit quality and a shift towards a lower risk loan portfolio due to the acquisition of Seacoast. Coverage of non-performing loans improved significantly during the quarter. The allowance for loan losses to non-performing loans now stands at 276%, as compared to 232% at June 30, 2004 and 137% at September 30, 2003.

#### Capital

Sovereign's Tier 1 leverage ratio was 6.56% at September 30, 2004. Tangible common equity to tangible assets was 4.51%. Tangible common

equity to tangible assets, excluding other comprehensive income ("OCI"), was 4.77%. The equity to assets ratio was 8.64% at September 30, 2004. Sovereign Bank's Tier 1 leverage ratio was 6.62% and the bank's risk-based capital ratio was 11.34% at September 30, 2004.

#### Accounting Changes

On September 30, 2004, the Emerging Issues Task Force (EITF) reached a consensus on EITF 04-8 "Accounting Issues Related to Certain Features of Contingently Convertible Debt and the Effect on Diluted Earnings per Share," which eliminated certain accounting benefits of convertible debt with contingent conversion features by requiring such instruments to be accounted for under the if-converted method for diluted earnings per share purposes. Issuers whose contingent convertible debt can be settled in stock will be required to increase the number of shares used in diluted earnings per share calculations by the total number of shares underlying the contingent convertible debt, regardless of conversion price. Many companies, including Sovereign, are retroactively affected by this accounting change. Sovereign issued \$800 million of contingently convertible trust preferred equity income redeemable securities in the first quarter of 2004. Effective in the fourth quarter 2004, Sovereign will be required to adopt EITF 04-8 and as a result, prior period earnings per share will be required to be restated. Sovereign expects this accounting change to result in a downward restatement of year-to-date prior period diluted GAAP earnings per share from \$.99 to \$.97. A reconciliation of quarterly GAAP, earnings per share, including the anticipated impact of EITF 04-8, is included in a later section of this release.

#### Looking Ahead

"We continue to be comfortable with management's guidance of \$1.65 to \$1.70 in operating earnings per share and approximately \$1.85 to \$1.90 in cash earnings per share for 2004, excluding the \$.03 to \$.04 anticipated impact of EITF 04-8 described above, after-tax merger related charges of \$.12 for our completed acquisitions of First Essex and Seacoast and \$.13 in connection with the debt redemption," Sidhu commented. "We are also comfortable with the analysts' mean estimate of \$1.91 per share for 2005, which implies an operating earnings growth of 14%. In spite of recent accounting changes, which will impact 2005 earnings per share \$.05 to \$.06, management's goal remains to strive for \$1.90 to \$2.00 in operating earnings per share, excluding after-tax merger related charges of \$.04 to \$.06 for our pending acquisition of Waypoint, which is expected to close in January 2005." A reconciliation of GAAP, operating, and cash earnings per share is included in a later section of this release.

Based upon our October 18 stock price of \$21.54, Sovereign is trading at a P/E of 11.3x analysts' mean 2005 estimate of operating earnings per share, a P/E of 10.4x for implied 2005 cash earnings per share and 154% of current book value. The book value per share at September 30, 2004 was \$13.95.

Sovereign Bancorp, Inc., ("Sovereign"), is the parent company of Sovereign Bank, pro forma a \$60 billion financial institution with more than 650 community banking offices, over 1,000 ATMs and approximately 9,500 team members in Connecticut, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania and Rhode Island. In addition to full-service retail banking, Sovereign offers a broad array of financial services and products including business and corporate banking, cash management, capital markets, trust and wealth management and insurance. Pro forma for pending acquisitions, Sovereign is the 18th largest banking institution in the United States. For more information on Sovereign Bank, visit <http://www.sovereignbank.com/> or call 1-877-SOV-BANK.

Interested parties will have the opportunity to listen to a live web-cast of Sovereign's Third Quarter 2004 earnings call on Wednesday, October 20 beginning at 8:30 a.m. ET at >Investor Relations >News >Conference Calls/Webcasts; or

<http://www.firstcallevts.com/service/ajwz410086127gf12.html>. The web-cast replay can be accessed anytime from 11:00 a.m. ET on October 20,

2004 through 12 a.m. ET (midnight) on December 15, 2004. Questions may be submitted during the call via email to investor@sovereignbank.com. A telephone replay will be accessible from October 20, 2004 - October 25, 2004 by dialing 1-800-642-1687, and confirmation id#1093191.

Note:

This press release contains financial information determined by methods other than in accordance with U.S. Generally Accepted Accounting Principles ("GAAP"). Sovereign's management uses the non-GAAP measures of Operating Earnings and Cash Earnings, and the related per share amounts, in their analysis of the company's performance. These measures, as used by Sovereign, adjust net income determined in accordance with GAAP to exclude the effects of special items, including significant gains or losses that are unusual in nature or are associated with acquiring and integrating businesses, and certain non-cash charges. Operating earnings represent net income adjusted for the after-tax effects of merger-related and integration charges and the loss on early extinguishment of debt. The forward-looking operating earnings guidance for 2004 excludes the anticipated impact of EITF 04-8, which will be effective in the fourth quarter of 2004. Cash earnings are operating earnings excluding the after-tax effect of amortization of intangible assets and stock-based compensation expense associated with stock options, restricted stock, bonus deferral plans and ESOP awards. Since certain of these items and their impact on Sovereign's performance are difficult to predict, management believes presentations of financial measures excluding the impact of these items provide useful supplemental information in evaluating the operating results of Sovereign's core businesses. These disclosures should not be viewed as a substitute for net income determined in accordance with GAAP, nor are they necessarily comparable to non-GAAP performance measures that may be presented by other companies.

This press release contains statements of Sovereign's strategies, plans, and objectives, as well as estimates of future operating results for 2004 and beyond for Sovereign Bancorp, Inc. as well as estimates of financial condition, operating efficiencies and revenue generation. These statements and estimates constitute forward-looking statements (within the meaning of the Private Securities Litigation Reform Act of 1995), which involve significant risks and uncertainties. Actual results may differ materially from the results discussed in these forward-looking statements. Factors that might cause such a difference include, but are not limited to, general economic conditions, changes in interest rates, deposit flows, loan demand, real estate values and competition; changes in accounting principles, policies, or guidelines; changes in legislation or regulation; Sovereign's ability in connection with any acquisition to complete such acquisition and to successfully integrate assets, liabilities, customers, systems and management personnel Sovereign acquires into its operations and to realize expected cost savings and revenue enhancements within expected time frame; the possibility that expected one time merger-related charges are materially greater than forecasted or that final **purchase** price allocations based on the fair value of acquired **assets** and liabilities and related adjustments to yield and/or amortization of the acquired assets and liabilities at any acquisition date are materially different from those forecasted; and other economic, competitive, governmental, regulatory, and technological factors affecting the Company's operations, integrations, pricing, products and services.

Sovereign Bancorp, Inc. and Subsidiaries

FINANCIAL HIGHLIGHTS

(unaudited)

Quarter Ended

Sept. 30 June 30 Mar. 31 Dec. 31 Sept. 3

	2004	2004	2004	2003	2003
(dollars in millions, except per share data)					
Operating Data					
Net income	\$82.5	\$131.4	\$102.2	\$112.6	\$109.2
Operating earnings (1)	143.3	131.4	121.5	112.6	109.2
Cash earnings (2)	161.6	147.2	136.9	127.3	124.4
Net interest income	363.0	332.0	322.8	308.5	287.3
Provision for loan losses	25.0	32.0	43.0	40.0	36.6
Total fees and other income before securities transactions	108.3	124.2	109.1	121.2	119.5
Net gain on investment securities	20.2	0.8	17.9	10.2	18.8
G&A expense	237.7	224.6	223.1	217.6	2
10.8					
Other expenses (3)	129.1	28.1	48.6	27.4	27.5
Performance Statistics					
Bancorp					
Net interest margin (3)	3.17%	3.22%	3.28%	3.39%	3.32%
Cash return on average assets (2)	1.20%	1.23%	1.20%	1.18%	1.20%
Operating return on average assets (1)	1.07%	1.10%	1.07%	1.05%	1.05%
Cash return on average equity (2)	14.14%	15.26%	15.47%	15.94%	15.97%
Operating return on average equity (1)	12.55%	13.62%	13.72%	14.10%	14.03%
Annualized net loan charge-offs to average loans	0.25%	0.43%	0.51%	0.55%	0.55%
Efficiency ratio (3) (4)	50.44%	49.22%	51.67%	50.65%	51.82%
Per Share Data					
Basic earnings per share	\$0.25	\$0.43	\$0.34	\$0.38	\$0.37
Diluted earnings per share	0.24	0.42	0.33	0.38	0.37
Operating earnings per share (1)	0.42	0.42	0.40	0.38	0.37
Cash earnings per share (2)	0.47	0.47	0.45	0.43	0.42
Dividend declared per share	.030	.030	.025	.025	.025

Book value (5)	13.95	12.46	12.78	11.12	10.84
Common stock price:					
High	22.48	22.10	24.51	24.99	19.68
Low	20.48	19.51	20.37	18.42	15.74
Close	\$21.82	\$22.10	\$21.42	\$23.75	\$18.55
Weighted average common shares:					
Basic	335.6	306.1	300.7	292.5	292.2
Diluted	341.7	311.7	306.7	298.5	297.2
End-of-period common shares:					
Basic	345.3	306.2	306.4	293.1	292.3
Diluted	351.2	312.1	311.7	299.4	297.4

Sovereign Bancorp, Inc. and Subsidiaries  
FINANCIAL HIGHLIGHTS  
(unaudited)

Year to Date

	Sept. 30	Sept. 30
	2004	2003
(dollars in millions, except per share data)		
Operating Data		
Net income	\$316.1	\$289.3
Operating earnings (1)	396.1	308.1
Cash earnings (2)	445.6	354.4
Net interest income	1,017.8	897.1
Provision for loan losses	100.0	122.0
Total fees and other income before securities transactions	341.6	334.4
Net gain on investment securities	39.0	55.8
G&A expense	685.4	63
4.7		
Other expenses (3)	205.7	130.6

Performance Statistics

Bancorp

Net interest margin (3)	3.22%	3.43%
Cash return on average assets (2)	1.21%	1.16%

Operating return on average assets		
(1)	1.08%	1.00%
Cash return on average equity (2)	14.90%	16.13%
Operating return on average equity		
(1)	13.24%	14.02%
Annualized net loan charge-offs to		
average loans	0.39%	0.55%
Efficiency ratio (3) (4)	50.42%	51.54%
Per Share Data		
Basic earnings per share	\$1.01	\$1.06
Diluted earnings per share	0.99	1.01
Operating earnings per share (1)	1.24	1.07
Cash earnings per share (2)	1.39	1.23
Dividend declared per share	0.085	0.075
Book value (5)	13.95	10.84
Common stock price:		
High	24.51	15.57
Low	19.51	11.85
Close	\$21.82	\$12.90
Weighted average common shares:		
Basic	314.4	272.1
Diluted	320.3	287.7
End-of-period common shares:		
Basic	345.3	292.3
Diluted	351.2	297.4

NOTES:

- (1) Operating earnings represent net income excluding the after-tax effects of special items, including significant gains or losses that are unusual in nature or are associated with acquiring or integrating businesses. See reconciliation on page I.
- (2) Cash earnings represents operating earnings excluding the after-tax effects of non-cash charges for the amortization of intangible assets and stock based compensation. Stock based compensation encompasses arrangements with employees under which the Company's obligation will

be settled by using stock rather than cash and includes expense related to stock options, restricted stock, bonus deferral plans, and ESOP expense. See reconciliation on page I.

- (3) Effective July 1, 2003, Sovereign elected to change the Company's accounting policy to treat trust preferred securities as liabilities and the associated dividends on the trust preferred securities as interest expense. Previously, this cost was classified within other expenses. This change in accounting policy did not have any impact on consolidated shareholders' equity or net income; however, it did result in an increase in liabilities of \$207.6 million at July 1, 2003 and an increase of \$5 million and \$3 million in net interest expense, with a corresponding decrease in other expense, for the three-month periods ended September 30, 2003 and December 31, 2003, respectively.

Prior periods have not been adjusted to conform with this change in accounting policy.

- (4) Efficiency ratio equals general and administrative expense as a percentage of total revenue, defined as the sum of net interest income and total fees and other income before securities transactions.
- (5) Book value equals stockholders' equity at period-end divided by common shares outstanding.

Sovereign Bancorp, Inc. and Subsidiaries  
FINANCIAL HIGHLIGHTS  
(unaudited)

Quarter Ended

	Sept. 30	June 30	Mar. 31	Dec. 31	Sept. 30
	2004	2004	2004	2003	2003
(dollars in millions)					

Financial Condition Data:

General					
Total assets	\$55,755	\$48,687	\$47,043	\$43,505	\$41,055
Loans	35,262	29,130	27,739	26,149	24,550
Total deposits and customer					
related accounts:	33,102	29,001	28,118	27,344	27,515
Core deposits and other					
customer related					
accounts	25,744	22,824	21,939	21,334	21,233



Time deposits	7,358	6,176	6,179	6,010	6,283
Borrowings	16,919	15,157	14,262	12,198	9,570
Minority interests	203	203	203	202	202
Stockholders' equity	4,815	3,815	3,916	3,260	3,169
Goodwill	2,103	1,289	1,293	1,027	1,027
Core deposit intangible	305	249	262	269	287
Asset Quality					
Non-performing assets	\$168.8	\$176.1	\$212.0	\$220.4	\$257.7
Non-performing loans	\$147.5	\$152.2	\$188.6	\$199.4	\$236.1
Non-performing assets to					
total assets	0.30%	0.36%	0.45%	0.51%	0.63%
Non-performing loans to					
total loans	0.42%	0.52%	0.68%	0.76%	0.96%
Allowance for loan losses	\$406.6	\$352.6	\$351.0	\$327.9	\$322.7
Allowance for loan losses					
to total loans	1.15%	1.21%	1.27%	1.25%	1.31%
Allowance for loan losses					
to non-performing loans	276%	232%	186%	164%	137%
Capitalization - Bancorp (1)					
Stockholders' equity to					
total assets	8.64%	7.84%	8.32%	7.49%	7.72%
Tier 1 leverage capital					
ratio	6.56%	7.13%	7.12%	5.61%	5.60%
Tangible equity to tangible					
assets, excluding OCI	4.77%	5.28%	5.19%	4.80%	4.73%
Tangible equity to tangible					
assets, including OCI	4.51%	4.83%	5.19%	4.66%	4.67%
Capitalization - Bank (1)					
Stockholders' equity to					
total assets	10.20%	9.12%	9.60%	8.99%	9.49%
Tier 1 leverage capital					
ratio	6.62%	6.85%	6.82%	6.66%	6.96%
Tier 1 risk-based capital					
ratio	8.42%	8.92%	8.82%	8.60%	8.65%
Total risk-based capital					
ratio	11.34%	12.12%	12.13%	12.12%	12.20%

(1) All capital ratios are calculated based upon adjusted end of period

assets consistent with OTS guidelines. The current quarter ratios are estimated as of the date of this earnings release.

Sovereign Bancorp, Inc. and Subsidiaries  
CONSOLIDATED BALANCE SHEETS  
(unaudited)

	Sept. 30	June 30	Mar. 31
(dollars in thousands)	2004	2004	2004
Assets			
Cash and amounts due			
from depository institutions	\$1,266,044	\$1,026,719	\$893,193
Investments:			
Available-for-sale	10,111,845	10,493,897	11,912,292
Held-to-maturity	4,027,472	4,007,041	2,489,030
Total investments	14,139,317	14,500,938	14,401,322
Loans:			
Commercial	13,445,735	12,251,456	11,919,975
Consumer	13,856,992	11,986,107	11,012,103
Residential mortgages	7,958,974	4,892,305	4,806,494
Total loans	35,261,701	29,129,868	27,738,57
Less allowance for loan losses	(406,612)	(352,637)	(351,007)
Total loans, net	34,855,089	28,777,231	27,387,565
Premises and equipment, net	352,089	286,682	289,517
Accrued interest receivable	225,918	196,347	188,002
Goodwill	2,103,158	1,289,340	1,292,809
Core deposit intangible	304,754	249,169	261,582
Bank owned life insurance	879,189	851,155	841,568
Other assets	1,629,450	1,509,296	1,487,657
Total assets	\$55,755,008	\$48,686,877	\$47,043,215
Liabilities and Stockholders' Equity			
Liabilities:			
Deposits and other customer related accounts:			
Core and other customer related accounts	\$25,743,796	\$22,824,310	\$21,939,435

Time deposits	7,357,882	6,176,310	6,178,871
Total	33,101,678	29,000,620	28,118,306
Borrowings and other <b>debt obligations</b>	16,919,164	15,157,017	14,261,686
Other liabilities	715,326	511,131	545,084
Total liabilities	50,736,168	44,668,768	42,925,076
Minority interests	203,488	202,919	202,513
Stockholders' equity:			
Common Stock	2,934,733	2,105,312	2,102,183
Warrants and stock options	318,874	306,594	305,297
Unallocated ESOP shares	(26,078)	(26,078)	(26,078)
) Treasury stock	(19,767)	(20,242)	(22,190)
) Accumulated other			
comprehensive income/ (loss)	(136,645)	(222,499)	6,349
Retained earnings	1,744,235	1,672,103	1,550,065
Total stockholders' equity	4,815,352	3,815,190	3,915,626
Total liabilities and			
stockholders' equity	\$55,755,008	\$48,686,877	\$47,043,215
Sovereign Bancorp, Inc. and Subsidiaries			
CONSOLIDATED BALANCE SHEETS			
(unaudited)			

	Dec. 31	Sept. 30
(dollars in thousands)	2003	2003
Assets		
Cash and amounts due		
from depository institutions	\$950,302	\$971,697
Investments:		
Available-for-sale	10,102,619	11,109,603
Held-to-maturity	2,516,352	413,152
Total investments	12,618,971	11,522,755
Loans:		
Commercial	11,063,686	10,756,312
Consumer	10,010,289	9,684,319
Residential mortgages	5,074,684	4,109,216
Total loans	26,148,659	24,549,847

Less allowance for loan losses	(327,894)	(322,684)
Total loans, net	25,820,765	24,227,163
Premises and equipment, net	273,278	273,931
Accrued interest receivable	190,714	175,644
Goodwill	1,027,292	1,027,292
Core deposit intangible	268,759	287,293
Bank owned life insurance	801,535	792,607
Other assets	1,553,713	1,776,910
Total assets	\$43,505,329	\$41,055,292
Liabilities and Stockholders' Equity		
Liabilities:		
Deposits and other customer related accounts:		
Core and other customer related accounts	\$21,334,106	\$21,232,550
Time deposits	6,009,902	6,282,630
Total	27,344,008	27,515,180
Borrowings and other <b>debt obligations</b>		
12,197,603	9,570,356	
Other liabilities	501,176	599,032
Total liabilities	40,042,787	37,684,568
Minority interests	202,136	201,757
Stockholders' equity:		
Common Stock	1,892,126	1,872,953
Warrants and stock options	13,944	13,230
Unallocated ESOP shares	(26,078)	(28,465)
Treasury stock	(21,927)	(22,501)
Accumulated other comprehensive income/ (loss)	(52,924)	(16,345)
Retained earnings	1,455,265	1,350,095
Total stockholders' equity	3,260,406	3,168,967
Total liabilities and stockholders' equity	\$43,505,329	\$41,055,292

Sovereign Bancorp, Inc. and Subsidiaries  
CONSOLIDATED STATEMENTS OF OPERATIONS  
(unaudited)

Quarter Ended

	Sept. 30	June 30	Mar. 31	Dec. 31	Sept. 30
	2004	2004	2004	2003	2003
(dollars in thousands, except per share data)					
Interest and dividend income:					
Interest on interest-					
earning deposits	\$1,505	\$980	\$528	\$385	\$539
Interest on investment securities					
Available for sale	124,803	136,497	137,226	144,787	132,211
Held to maturity	46,470	31,879	28,819	5,142	5,958
Interest on loans	412,771	345,288	333,190	324,990	325,062
Total interest and dividend					
income	585,549	514,644	499,763	475,304	463,770
Interest expense:					
Deposits and related					
customer accounts	83,160	63,142	65,012	68,647	73,488
Borrowings	139,439	119,463	111,935	98,178	102,990
Total interest					
expense	222,599	182,605	176,947	166,825	176,478
Net interest					
income	362,950	332,039	322,816	308,479	287,292
Provision for loan					
losses	25,000	32,000	43,000	40,000	36,600
Net interest income after provision for					
loan losses	337,950	300,039	279,816	268,479	250,692
Non-interest income:					
Consumer banking					
fees	62,771	58,072	53,985	53,778	53,531
Commercial banking					
fees	31,757	30,552	28,685	28,766	27,197
Mortgage banking					
revenue (1)	(4,080)	16,436	5,427	15,725	17,458
Capital markets					
revenue	3,409	5,099	4,887	4,814	5,389
Bank owned life					
insurance income	9,922	9,588	9,626	10,810	12,080
Other	4,498	4,499	6,444	7,262	3,861
Total fees and other					

income before security					
gains	108,277	124,246	109,054	121,155	119,516
Net gain on					
securities	20,247	829	17,881	10,232	18,848
Total non-					
interest income	128,524	125,075	126,935	131,387	138,364
Non-interest expense:					
General and					
administrative					
Compensation and					
benefits	114,871	105,224	104,080	98,314	97,788
Occupancy and					
equipment	54,976	52,097	54,379	53,437	52,838
Technology expense	18,935	19,333	17,605	19,145	18,652
Outside services	14,332	12,746	12,336	14,148	12,192
Marketing expense	11,983	10,751	10,700	8,385	9,218
Other					
administrative					
expenses	22,583	24,433	24,046	24,201	20,132
Total general					
and					
administrative	237,680	224,584	223,146	217,630	210,820
Other expenses:					
Amortization of core					
deposit intangibles	19,836	17,576	17,553	17,823	18,246
Trust preferred					
securities and other					
minority interest					
expense	5,502	5,438	5,436	5,439	5,434
Equity method					
investments (2)	10,257	7,327	2,012	4,159	2,966
Loss/(gain) on debt					
extinguishment	65,546	(2,285)	-	-	857
Merger-related and					
integration charges	27,941	-	23,587	-	-
Total other					
expenses	129,082	28,056	48,588	27,421	27,503
Total non-					
interest					
expense	366,762	252,640	271,734	245,051	238,323
Income before					
income taxes	99,712	172,474	135,017	154,815	150,733
Income tax expense	17,170	41,120	32,790	42,228	41,500

Net income	\$82,542	\$131,354	\$102,227	\$112,587	\$109,233
Diluted earnings					
per share	\$0.24	\$0.42	\$0.33	\$0.38	\$0.37
Operating earnings					
per share					
(3)	\$0.42	\$0.42	\$0.40	\$0.38	\$0.37
Weighted average shares:					
Basic	335,603	306,087	300,720	292,540	292,169
Diluted	341,700	311,689	306,678	298,508	297,151
(1) Mortgage banking activity is summarized below:					
Gains on sale of mortgage loans and mortgage backed securities	4,090	2,808	16,469	9,457	19,080
Net gains/(loss)					
recorded under SFAS 133	(112)	(1,878)	81	7,895	(14,112)
) Mortgage servicing fees, net of mortgage servicing rights					
amortization	1,343	(1,628)	137	(479)	(5,760)
) Mortgage servicing right (impairments)/					
recoveries	(9,401)	17,134	(11,260)	(1,148)	18,250
Total mortgage					
banking revenues	(4,080)	16,436	5,427	15,725	17,458

Sovereign Bancorp, Inc. and Subsidiaries  
CONSOLIDATED STATEMENTS OF OPERATIONS  
(unaudited)

Year to Date

Sept. 30	Sept. 30
2004	2003

(dollars in thousands, except per share data)

Interest and dividend income:  
Interest on interest-earning

deposits	\$3,013	\$1,756
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Interest on investment securities		
Available for sale	398,526	439,910
Held to maturity	107,168	21,981
Interest on loans	1,091,249	990,800
Total interest and dividend		
income	1,599,956	1,454,447
Interest expense:		
Deposits and related customer		
accounts	211,314	252,042
Borrowings	370,837	305,256
Total interest expense	582,151	557,298
Net interest income	1,017,805	897,149
Provision for loan losses	100,000	121,957
Net interest income after		
provision for loan losses	917,805	775,192
Non-interest income:		
Consumer banking fees	174,828	155,041
Commercial banking fees	90,994	79,207
Mortgage banking revenue (1)	17,783	34,293
Capital markets revenue	13,395	22,200
Bank owned life insurance income	29,136	32,528
Other	15,441	11,095
Total fees and other income before		
<b>security</b>		
gains	341,577	334,364
Net gain on securities	38,957	55,825
Total non- <b>interest</b>		
income	380,534	390,189
Non-interest expense:		
General and administrative		
Compensation and benefits	324,175	290,436
Occupancy and equipment	161,452	157,324
Technology expense	55,873	53,887
Outside services	39,414	39,288
Marketing expense	33,434	30,439
Other administrative expenses	71,062	63,361
Total general and		
administrative	685,410	634,735



Other expenses:		
Amortization of core deposit		
intangibles	54,965	56,012
Trust preferred securities and other		
minority interest expense	16,376	37,374
Equity method investments (2)	19,596	7,338
Loss/(gain) on debt extinguishment	63,261	29,838
Merger-related and integration		
charges	51,528	-
Total other expenses	205,726	130,562
Total non-interest		
expense	891,136	765,297
Income before income taxes	407,203	400,084
Income tax expense	91,080	110,820
Net income	\$316,123	\$289,264
Diluted earnings per		
share	\$0.99	\$1.01
Operating earnings per		
share (3)	\$1.24	\$1.07
Weighted average shares:		
Basic	314,365	272,114
Diluted	320,251	287,693
(1) Mortgage banking activity is summarized below:		
Gains on sale of mortgage loans and		
mortgage backed securities	23,367	51,767
Net gains/(loss) recorded under SFAS		
133	(1,909)	(6,186)
Mortgage servicing fees, net of mortgage servicing rights		
amortization	(148)	(11,641)
Mortgage servicing right		
(impairments)/recoveries	(3,527)	353
Total mortgage banking revenues	17,783	34,293

(2) During the second quarter of 2004, Sovereign made a \$60 million investment in a synthetic fuel partnership which is accounted for as an equity method investment. As a result of the increasing

significance of our equity method investment portfolios, Sovereign reclassified the income statement effects of these items to other expenses.

(3) See reconciliation on Page I.

Sovereign Bancorp, Inc. and Subsidiaries  
AVERAGE BALANCE, INTEREST AND YIELD/RATE ANALYSIS  
(unaudited)

Quarter Ended  
September 30, 2004

			Yield/
(dollars in thousands)	Average Balance	Interest (1)	Rate
Earning assets:			
Investment securities	\$15,045,842	\$183,007	4.86%
Loans:			
Commercial	13,006,393	162,723	4.91%
Consumer	12,919,725	165,502	5.10%
Residential mortgages	6,675,476	86,906	5.21%
Total loans	32,601,594	415,131	5.05%
Allowance for loan losses	(395,427)		
Total earning assets	47,252,009	\$598,138	5.03%
Other assets	6,223,444		
Total assets	\$53,475,453		
Funding liabilities:			
Deposits and other customer related accounts:			
Core and other customer related accounts	\$24,753,740	\$47,349	0.76%
Time deposits	6,985,446	35,811	2.04%
Total	31,739,186	83,160	1.04%
Borrowings:			
Federal Home Loan Bank advances	9,759,462	87,986	3.54%
Fed funds and repurchase agreements	2,797,876	16,206	2.31%
Other borrowings	3,921,692	35,247	3.56%
Total borrowings	16,479,030	139,438	3.34%
Total funding liabilities	48,218,216	\$222,599	1.83%
Other liabilities	713,062		
Total liabilities	48,931,278		
Stockholders' equity	4,544,175		
Total liabilities and			

stockholders' equity	\$53,475,453	
Net interest income		\$375,539
Interest rate spread		2.80%
Net interest margin		3.17%

(1) Tax equivalent basis

Sovereign Bancorp, Inc. and Subsidiaries  
AVERAGE BALANCE, INTEREST AND YIELD/RATE ANALYSIS  
(unaudited)

Quarter Ended  
June 30, 2004

(dollars in thousands)	Average Balance	Interest (1)	Yield/ Rate
Earning assets:			
Investment securities	\$14,766,721	\$179,444	4.86%
Loans:			
Commercial	12,084,881	138,736	4.55%
Consumer	11,302,412	140,510	5.00%
Residential mortgages	4,854,811	67,649	5.57%
Total loans	28,242,104	346,895	4.90%
Allowance for loan losses	(355,125)		
Total earning assets	42,653,700	\$526,339	4.93%
Other assets	5,357,589		
Total assets	\$48,011,289		
Funding liabilities:			
Deposits and other customer related accounts:			
Core and other customer related accounts	\$22,101,334	\$32,382	0.59%
Time deposits	6,070,703	30,760	2.04%
Total	28,172,037	63,142	0.90%
Borrowings:			
Federal Home Loan Bank advances	8,271,726	79,227	3.81%
Fed funds and repurchase agreements	3,148,479	7,529	0.94%
Other borrowings	3,868,466	32,707	3.36%
Total borrowings	15,288,671	119,463	3.10%
Total funding liabilities	43,460,708	\$182,605	1.68%
Other liabilities	671,178		
Total liabilities	44,131,886		

Stockholders' equity	3,879,403	
Total liabilities and stockholders' equity	\$48,011,289	
Net interest income		\$343,734
Interest rate spread		2.86%
Net interest margin		3.22%

(1) Tax equivalent basis

Sovereign Bancorp, Inc. and Subsidiaries  
AVERAGE BALANCE, INTEREST AND YIELD/RATE ANALYSIS  
(unaudited)

Quarter Ended  
September 30, 2003

(dollars in thousands)	Average Balance	Interest (1)	Yield/ Rate
Earning assets:			
Investment securities	\$11,280,351	\$145,505	5.16%
Loans:			
Commercial	10,761,231	130,897	4.77%
Consumer	9,340,289	130,403	5.54%
Residential mortgages	4,335,326	64,616	5.96%
Total loans	24,436,846	325,916	5.28%
Allowance for loan losses	(323,743)		
Total earning assets	35,393,454	\$471,421	5.29%
Other assets	5,773,003		
Total assets	\$41,166,457		
Funding liabilities:			
Deposits and other customer related accounts:			
Core and other customer related accounts	\$21,093,786	\$31,967	0.60%
Time deposits	6,430,966	41,521	2.56%
Total	27,524,752	73,488	1.06%
Borrowings:			
Federal Home Loan Bank			
advances	5,968,148	73,111	4.83%
Fed funds and repurchase agreements	1,303,393	3,328	1.01%
Other borrowings	2,291,656	26,551	4.58%
Total borrowings	9,563,197	102,990	4.25%
Total funding liabilities	37,087,949	\$176,478	1.88%

Other liabilities	988,561	
Total liabilities	38,076,510	
Stockholders' equity	3,089,947	
Total liabilities and stockholders' equity	\$41,166,457	
Net interest income		\$294,943
Interest rate spread		2.85%
Net interest margin		3.32%

(1) Tax equivalent basis

Sovereign Bancorp, Inc. and Subsidiaries  
AVERAGE BALANCE, INTEREST AND YIELD/RATE ANALYSIS  
(unaudited)

	Year to Date September 30, 2004		
	Average		Yield/
(dollars in thousands)	Balance	Interest (1)	Rate
Earning assets:			
Investment securities	\$14,645,912	538,827	4.90%
Loans:			
Commercial	12,171,171	433,788	4.69%
Consumer	11,569,780	441,722	5.10%
Residential mortgages	5,549,520	221,298	5.32%
Total loans	29,290,471	1,096,808	4.97%
Allowance for loan losses	(364,857)		
Total earning assets	43,571,526	\$1,635,635	4.99%
Other assets	5,558,865		
Total assets	\$49,130,391		
Funding liabilities:			
Deposits and other customer related accounts:			
Core and other customer related accounts	\$22,741,136	\$111,393	0.65%
Time deposits	6,390,430	99,921	2.09%
Total	29,131,566	211,314	0.97%
Borrowings:			
Federal Home Loan Bank			
advances	8,701,974	245,027	3.72%
Fed funds and repurchase agreements	2,833,640	31,153	1.46%
Other borrowings	3,785,105	94,657	3.31%
Total borrowings	15,320,719	370,837	3.20%

Total funding liabilities	44,452,285	\$582,151	1.74%
Other liabilities	681,635		
Total liabilities	45,133,920		
Stockholders' equity	3,996,471		
Total liabilities and stockholders' equity	\$49,130,391		
Net interest income		\$1,053,484	
Interest rate spread			2.85%
Net interest margin			3.22%

(1) Tax equivalent basis

Sovereign Bancorp, Inc. and Subsidiaries  
AVERAGE BALANCE, INTEREST AND YIELD/RATE ANALYSIS  
(unaudited)

	Year to Date September 30, 2003		
	Average		Yield/
(dollars in thousands)	Balance	Interest (1)	Rate
Earning assets:			
Investment securities	\$11,894,103	\$478,552	5.36%
Loans:			
Commercial	10,531,400	403,546	5.06%
Consumer	8,970,627	390,332	5.82%
Residential mortgages	4,451,050	200,034	5.99%
Total loans	23,953,077	993,912	5.52%
Allowance for loan losses	(312,308)		
Total earning assets	35,534,872	\$1,472,464	5.51%
Other assets	5,453,491		
Total assets	\$40,988,363		
Funding liabilities:			
Deposits and other customer related accounts:			
Core and other customer related accounts	\$20,217,404	\$116,955	0.77%
Time deposits	6,640,323	135,087	2.72%
Total	26,857,727	252,042	1.25%
Borrowings:			
Federal Home Loan Bank			
advances	5,865,820	224,937	5.08%
Fed funds and repurchase agreements	1,972,641	3,881	0.25%
Other borrowings	2,086,034	76,438	4.86%
Total borrowings	9,924,495	305,256	4.07%

Total funding liabilities	36,782,222	\$557,298	2.01%
Other liabilities	1,268,257		
Total liabilities	38,050,479		
Stockholders' equity	2,937,884		
Total liabilities and stockholders' equity	\$40,988,363		
Net interest income		\$915,166	
Interest rate spread			2.97%
Net interest margin			3.43%

(1) Tax equivalent basis

Sovereign Bancorp, Inc. and Subsidiaries  
SUPPLEMENTAL INFORMATION  
(unaudited)

#### NON-PERFORMING ASSETS

	Sept. 30	June 30	Mar. 31	Dec. 31	Sept. 30
(dollars in thousands)	2004	2004	2004	2003	2003
Non-accrual loans:					
Commercial	\$89,061	\$90,370	\$113,734	\$129,029	\$165,317
Consumer	24,417	27,923	31,573	30,921	29,667
Residential mortgages	32,858	32,635	41,925	38,195	39,745
Total non-accrual					
loans	146,336	150,928	187,232	198,145	234,729
Restructured loans	1,205	1,262	1,378	1,235	1,335
Total non-					
performing loans	147,541	152,190	188,610	199,380	236,064
Real estate owned, net	16,397	19,609	18,349	17,016	17,556
Other repossessed assets	4,824	4,268	5,006	4,051	4,082
Total non-					
performing assets	\$168,762	\$176,067	\$211,965	\$220,447	\$257,702
Non-performing loans as a percentage of total					
loans	0.42%	0.52%	0.68%	0.76%	0.96%
Non-performing assets as a percentage of total					
assets	0.30%	0.36%	0.45%	0.51%	0.63%
Non-performing assets as a percentage of total loans, real estate owned and repossessed					
assets	0.48%	0.60%	0.76%	0.84%	1.05%

Allowance for loan losses as a percentage					
of non-performing loans	276%	232%	186%	164%	137%

NET LOAN CHARGE-OFFS

	Sept. 30	June 30	Mar. 31	Dec. 31	Sept. 30
Quarters ended (in thousands)	2004	2004	2004	2003	2003
Commercial real estate	\$(1,064)	\$6,117	\$3,558	\$98	\$2,308
Commercial and industrial					
and other	10,823	14,502	19,767	25,755	22,151
Total Commercial	9,759	20,619	23,325	25,853	24,459
Auto loans	7,615	6,418	7,408	5,521	5,038
Home equity loans and other	2,770	3,268	3,605	3,277	2,964
Total Consumer	10,385	9,686	11,013	8,798	8,002
Residential mortgages	326	65	209	138	992
Total	\$20,470	\$30,370	\$34,547	\$34,789	\$33,453

DEPOSIT AND OTHER CUSTOMER RELATED ACCOUNT COMPOSITION - End of period

	Sept. 30	June 30	Mar. 31
Quarters ended (in thousands)	2004	2004	2004
Demand deposit accounts	\$5,072,090	\$4,698,610	\$4,481,546
NOW accounts	7,748,012	6,554,831	6,248,412
Customer repurchase agreements	848,890	810,062	789,524
Savings accounts	3,667,116	3,303,890	3,317,836
Money market accounts	8,407,688	7,456,917	7,102,117
Certificates of deposits	7,357,882	6,176,310	6,178,871
Total	\$33,101,678	\$29,000,620	\$28,118,306

DEPOSIT AND OTHER CUSTOMER RELATED ACCOUNT COMPOSITION - End of period

	Dec. 31	Sept. 30
Quarters ended (in thousands)	2003	2003
Demand deposit accounts	\$4,306,376	\$4,292,621
NOW accounts	6,068,163	6,294,730



Customer repurchase agreements	1,017,544	902,522
Savings accounts	3,098,892	3,166,319
Money market accounts	6,843,131	6,576,358
Certificates of deposits	6,009,902	6,282,630
Total	\$27,344,008	\$27,515,180

LOAN COMPOSITION - End of period

	Sept. 30	June 30	Mar. 31
Quarters ended (in thousands)	2004	2004	2004
Commercial real estate	\$5,800,536	\$5,050,915	\$4,993,700
Commercial industrial loans	7,645,199	7,200,541	6,926,275
Total commercial loans	13,445,735	12,251,456	11,919,975
Home equity loans	8,988,139	7,790,049	6,971,401
Auto loans	4,340,487	3,631,153	3,621,169
Other	528,366	564,905	419,533
Total consumer loans	13,856,992	11,986,107	11,012,103
Total residential loans	7,958,974	4,892,305	4,806,494
Total loans	\$35,261,701	\$29,129,868	\$27,738,572

LOAN COMPOSITION - End of period

	Dec. 31	Sept. 30
Quarters ended (in thousands)	2003	2003
Commercial real estate	\$4,702,046	\$4,660,138
Commercial industrial loans	6,361,640	6,096,174
Total commercial loans	11,063,686	10,756,312
Home equity loans	6,457,682	6,102,455
Auto loans	3,240,383	3,261,150
Other	312,224	320,714
Total consumer loans	10,010,289	9,684,319
Total residential loans	5,074,684	4,109,216
Total loans	\$26,148,659	\$24,549,847

Sovereign Bancorp, Inc. and Subsidiaries

SUPPLEMENTAL INFORMATION  
(unaudited)

DEPOSIT AND OTHER CUSTOMER RELATED ACCOUNT COMPOSITION - Average

	Sept. 30	June 30	Mar. 31
Quarters ended (in thousands)	2004	2004	2004
Demand deposit accounts	\$4,936,996	\$4,506,601	\$4,239,684
NOW accounts	7,117,978	6,313,501	5,990,184
Customer repurchase agreements	821,182	784,850	880,544
Savings accounts	3,621,567	3,328,743	3,217,946
Money market accounts	8,256,017	7,167,639	7,017,860
Certificates of deposits	6,985,446	6,070,703	6,108,153
Total	\$31,739,186	\$28,172,037	\$27,454,371

Sovereign Bancorp, Inc. and Subsidiaries  
SUPPLEMENTAL INFORMATION  
(unaudited)

DEPOSIT AND OTHER CUSTOMER RELATED ACCOUNT COMPOSITION - Average

	Dec. 31	Sept. 30
Quarters ended (in thousands)	2003	2003
Demand deposit accounts	\$4,197,814	\$4,186,582
NOW accounts	6,135,210	6,253,423
Customer repurchase agreements	963,885	970,330
Savings accounts	3,138,766	3,180,188
Money market accounts	6,744,627	6,503,263
Certificates of deposits	6,138,121	6,430,966
Total	\$27,318,423	\$27,524,752

LOAN COMPOSITION - Average

	Sept. 30	June 30	Mar. 31
Quarters ended (in thousands)	2004	2004	2004
Commercial real estate	\$5,621,144	\$5,014,765	\$4,869,200
Commercial industrial loans	6,534,378	6,214,663	5,669,558
Other	850,871	855,453	874,302
Total commercial loans	13,006,393	12,084,881	11,413,060

Home equity loans	8,177,146	7,206,082	6,666,343
Auto loans	4,198,175	3,636,061	3,457,105
Other	544,404	460,269	348,921
Total consumer loans	12,919,725	11,302,412	10,472,369
Total residential loans	6,675,476	4,854,811	5,105,900
Total loans	\$32,601,594	\$28,242,104	\$26,991,329

LOAN COMPOSITION - Average

	Dec. 31	Sept. 30
Quarters ended (in thousands)	2003	2003
Commercial real estate	\$4,662,734	\$4,610,919
Commercial industrial loans	5,336,532	5,285,571
Other	881,626	864,741
Total commercial loans	10,880,892	10,761,231
Home equity loans	6,241,296	5,824,058
Auto loans	3,248,915	3,203,014
Other	319,592	313,217
Total consumer loans	9,809,803	9,340,289
Total residential loans	4,726,609	4,335,326
Total loans	\$25,417,304	\$24,436,846

Sovereign Bancorp, Inc. and Subsidiaries

RECONCILIATION OF CASH AND OPERATING EARNINGS TO REPORTED EARNINGS  
(unaudited)

Operating earnings for 2004 exclude the after tax effects of loan loss provision and merger expenses related to the First Essex and Seacoast acquisitions and the after-tax effects of the loss on our debt extinguishment of holding company notes in September 2004. The forward-looking operating earnings guidance for 2004 excludes the anticipated impact of EITF 04-8 which will be effective in the fourth quarter of 2004. Operating earnings for 2003 excludes the after tax effects of the loss on our debt extinguishment of holding company notes that occurred in March 2003. Cash earnings are operating earnings excluding the after-tax effects of non-cash charges for amortization of intangible assets and stock based compensation.

(dollars in thousands, except per share data  
- all amounts are after tax)

	Quarter Ended		
	Total dollars		
	Sept. 30	Jun. 30	Sept. 30

	2004	2004	2003
Net income as reported	\$82,542	\$131,354	\$109,233
Business acquisitions:			
Merger related and integration costs	18,162	-	-
Provision for loan loss	-	-	-
Adoption of EITF 04-8 (1)	-	-	-
Loss on debt extinguishment	42,605	-	-
Operating earnings	143,309	131,354	109,233
Amortization of intangibles	14,578	12,047	12,387
Stock based compensation (2)	3,671	3,761	2,795
Cash earnings	\$161,558	\$147,162	\$124,415
Weighted average diluted shares	341,700	311,689	297,151

Sovereign Bancorp, Inc. and Subsidiaries

RECONCILIATION OF CASH AND OPERATING EARNINGS TO REPORTED EARNINGS  
(unaudited)

(dollars in thousands, except per share data  
- all amounts are after tax)

	Quarter Ended Per share		
	Sept. 30	Jun. 30	Sept. 30
	2004	2004	2003
Net income as reported	\$0.24	\$0.42	\$0.37
Business acquisitions:			
Merger related and integration costs	0.05	-	-
Provision for loan loss	-	-	-
Adoption of EITF 04-8 (1)	-	-	-
Loss on debt extinguishment	0.13	-	-
Operating earnings	0.42	0.42	0.37
Amortization of intangibles	0.04	0.04	0.04
Stock based compensation (2)	0.01	0.01	0.01
Cash earnings	\$0.47	\$0.47	\$0.42
Weighted average diluted shares			

Sovereign Bancorp, Inc. and Subsidiaries

RECONCILIATION OF CASH AND OPERATING EARNINGS TO REPORTED EARNINGS  
(unaudited)

(dollars in thousands, except per share data  
- all amounts are after tax)

	Total dollars	Year to Date Per Share			
		Sept. 30		Sept. 30	
		2004	2003	2004	2003
Net income as reported	\$316,123	\$289,264	\$0.99	\$1.01	
Business acquisitions:					
Merger related and integration costs	33,493		-	0.11	-
Provision for loan loss	3,900		-	0.01	-
Adoption of EITF 04-8 (1)	-		-	-	-
Loss on debt extinguishment	42,605	18,838	0.13	0.07	
Operating earnings	396,121	308,102	1.24	1.07	
Amortization of intangibles	38,624	37,989	0.12	0.13	
Stock based compensation (2)	10,900	8,265	0.03	0.03	
Cash earnings	\$445,645	\$354,356	\$1.39	\$1.23	
Weighted average diluted shares	320,251	288,296			

Sovereign Bancorp, Inc. and Subsidiaries  
RECONCILIATION OF CASH AND OPERATING EARNINGS TO REPORTED EARNINGS  
(unaudited)

(dollars in thousands, except per share data  
- all amounts are after tax)

	2004	Forward-Looking Per Share	
		2005	
Net income as reported	\$1.36 - \$1.41	\$1.84 - \$1.94	
Business acquisitions:			
Merger related and integration costs	0.11	.04 - .06	
Provision for loan loss	0.01	-	
Adoption of EITF 04-8 (1)	0.03 - 0.04	-	
Loss on debt extinguishment	0.13	-	
Operating earnings	\$1.65 - \$1.70	\$1.90 - \$2.00	
Amortization of intangibles	0.16		
Stock based compensation (2)	0.04		
Cash earnings	\$1.85 - \$1.90		
Weighted average diluted shares			

(1) Effective in the fourth quarter of 2004, Sovereign will be required to

o

adopt EITF 04-8 "Accounting Issues Related to Certain Features of Contingently Convertible Debt and the Effect on Diluted Earnings per Share". This EITF requires the potential dilution from contingently

convertible debt be included in the calculation of diluted earnings per

share upon the issuance of the debt. Sovereign issued \$800 million of contingently convertible trust preferred equity income redeemable securities in the first quarter of 2004. Prior period earnings per share will be required to be restated as detailed below.

	Quarter Ended			Year to
	Sept. 30	Jun. 30	Mar. 30	Date
	2004	2004	2004	Sept. 30
	2004	2004	2004	2004
Net income as reported:	\$82,542	\$131,354	\$102,227	\$316,123
Addback : Contingently convertible trust preferred interest expense,				
net of tax	6,310	6,300	2,285	14,895
Adjusted net income for earnings				
per share purposes	\$88,852	\$137,654	\$104,512	\$331,018
Weighted average diluted shares as				
reported	341,700	311,689	306,678	320,251
Additional dilution from				
contingently convertible debt	26,082	26,082	9,675	20,613
Adjusted weighted average diluted				
shares	367,782	337,771	316,353	340,864
Adjusted diluted earnings per				
share	0.24	0.41	0.33	0.97

(2) Stock based compensation encompasses arrangements with employees under which the Company's obligation will be settled by using stock rather

than cash and includes expense related to stock options, restricted stock, bonus deferral plans, and ESOP expense.

Sovereign Bancorp, Inc. and Subsidiaries  
SUPPLEMENTAL INFORMATION  
(unaudited)

Purchase of First Essex Bancorp Inc. ("First Essex")

On February 6, 2004 Sovereign completed the purchase of First Essex and the results of its operations are included from purchase date through September 30, 2004. Sovereign issued 12.7 million shares of common stock and exchanged Sovereign stock options for existing First Essex stock options, whose combined value totaled \$209.9 million and made cash payments of \$208.2 million to acquire and convert all outstanding First Essex shares and stock options and pay associated fees. The preliminary **purchase** price was allocated to acquired **assets** and liabilities of First Essex based on fair value as of February 6, 2004. The

company is in the process of finalizing these values and as such the allocation of the **purchase** price is subject to revision.

#### **Assets**

and Liabilities Acquired from First Essex as of February 6, 2004:

(dollars in millions)

Assets		Liabilities	
Investments		394.8	Deposits:
Loans:		Core	777.0
Commercial	710.4	Time	488.6
Consumer	435.6	Total deposits	1,265.6
Residential mortgages	52.2	Borrowings and other	
<b>debt</b>		<b>obligations</b>	
	236.9		
Total loans	1,198.2	Other liabilities	27.5
Less allowance for loan losses	(14.7)		
Total loans, net	1,183.5	Total liabilities	\$1,530.0
Federal funds and cash	(199.0)		
Premises and equipment, net	9.2		
Other real estate owned	1.0		
Other assets	72.7		
Core deposit intangible	15.6		
Goodwill	262.1		
Total assets	\$1,739.9		

In connection with the First Essex acquisition, Sovereign recorded charges against its earnings for the three month period ended March 31, 2004 for an additional loan loss provision of \$6.0 million pretax (\$3.9 million net of tax) to conform First Essex's allowance for loan losses to Sovereign's reserve policies and for merger related expenses of \$23.6 million pretax (\$15.3 million net of tax).

Sovereign Bancorp, Inc. and Subsidiaries

SUPPLEMENTAL INFORMATION

(unaudited)

Purchase of Seacoast Bancorp Inc. ("Seacoast")

On July 23, 2004, Sovereign completed the purchase of Seacoast and the results of its operations are included from purchase date through September 30, 2004. Sovereign issued 36.2 million shares of common stock and exchanged Sovereign stock options for existing Seacoast stock options, whose combined value totaled \$821.7 million and made cash payments of \$256.2 million to acquire and convert all outstanding Seacoast shares and stock options and pay associated fees. The preliminary **purchase** price was allocated to acquired **assets** and liabilities of Seacoast based on fair value as of July 23, 2004. The company is in the process of finalizing these values and as such the allocation of the **purchase** price is subject to revision.

#### **Assets**

and Liabilities Acquired from Seacoast as of July 23, 2004:

(dollars in millions)

Assets		Liabilities	
Investments		714.9	Deposits:
Loans:		Core	2,451.5
Commercial	966.4	Time	1,202.9
Consumer	1,015.2	Total deposits	3,654.4
Residential mortgages	2,120.4	Borrowings and other	
<b>debt</b>		<b>obligations</b>	
	1,158.5		
Total loans	4,102.0	Other liabilities	83.9
Less allowance for loan losses	(49.5)		
Total loans, net	4,052.5	Total liabilities	\$4,896.8
Cash paid, net of cash acquired	(32.2)		
Premises and equipment, net	63.0		
Other real estate owned	0.7		
Other assets	25.4		
Core deposit intangible	75.4		
Goodwill	818.8		
Total assets	\$5,718.5		

In connection with the Seacoast acquisition, Sovereign recorded charges against its earnings for the three month period ended September 30, 2004 for merger related expenses of \$27.9 million pretax (\$18.2 million net of tax).

CONTACT: FINANCIAL: Jim Hogan, +1-610-320-8496, or jhogan@sovereignbank.com, or Mark McCollom, +1-610-208-6426, or mmccollo@sovereignbank.com, or Stacey Weikel, +1-610-208-6112, or sweikel@sovereignbank.com; or MEDIA: Ed Shultz, +1-610-378-6159, or eshultz1@sovereignbank.com, all of Sovereign Bancorp  
Web site: <http://www.sovereignbank.com/>

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**Publisher Name:** PR Newswire Association LLC

**Company Names:** \*Sovereign Bancorp Inc.

**Descriptors:** \*Banking industry

**Geographic Names:** \*1USA (United States )

**Industry Names:** BUSN (Business); BUS (Business, general )

**SIC Codes:** 6020 (Commercial Banks )

**Ticker Symbols:** SOV

106/9/2 (Item 2 from file: 16)

11503800 **Supplier Number:** 122726300



Fitch Rates Streeterville ABS CDO 'AAA/AA/A-'.  
Business Wire , p NA  
Oct 1 , 2004

Language: English    Record Type: Fulltext

Document Type: Newswire ; Trade

Word Count: 593

**Text:**

NEW YORK -- Fitch Ratings assigns the following ratings to Streeterville ABS CDO, Ltd. and Streeterville ABS CDO, Inc. (collectively referred to as the co-issuers):

--\$850,000,000 class A-1 first priority senior secured **floating-rate** delayed draw **notes** 'AAA';  
--\$50,000,000 class A-2 second priority senior secured **floating-rate notes** 'AAA';  
--\$30,000,000 class B-1 third priority secured **floating-rate notes** 'AA';  
--\$37,000,000 class B-2 third priority secured **fixed-rate notes** 'AA';  
--\$6,000,000 class C-1 mezzanine secured **floating-rate notes** 'A-';  
--\$10,000,000 class C-2 mezzanine secured **fixed-rate notes** 'A-'.  
The ratings of the class A-1, class A-2, class B-1, and class B-2 notes address the likelihood that investors will receive full and timely payments of interest, as per the governing documents, as well as the aggregate outstanding amount of principal by the legal final maturity date. The ratings of the class C-1 and class C-2 notes address the likelihood that investors will receive ultimate interest and deferred interest payments, as per the governing documents, as well as the aggregate outstanding amount of principal by the legal final maturity date.

The ratings are based upon the credit quality of the underlying assets and the credit enhancement provided to the capital structure through subordination and excess spread. Additionally, the ratings address the experience and capabilities of Vanderbilt Capital Advisors, LLC (Vanderbilt) as the **asset** manager.

The net proceeds from the issuance of the notes will be used to **purchase** a high grade portfolio consisting of approximately 79% of residential mortgage-backed securities (RMBS), 1% of commercial mortgage-backed securities (CMBS) and consumer asset-backed securities (ABS), and 20% of collateralized **debt obligations** (CDOs). The collateral supporting the structure will have a maximum Fitch-weighted average rating factor (WARF) of 0.85 ('AA+/AA') and was approximately \$765 million, or 77% of the target portfolio amount ramped up at closing. The asset manager will have 120 days from the closing date to ramp-up to the target portfolio amount of \$1 billion. The substitution period will last up to three years after deal closing.

The notes have a stated maturity of November 2040 and quarterly payments on the notes will begin on Feb. 3, 2005. This transaction includes a structural feature that diverts excess interest to pay down the notes. Starting in November 2012, excess interest will be used to pay principal on the notes on a reverse sequential basis. Upon the breach of the **interest** coverage (IC) test as outlined in the **security** agreement, excess **interest** will be used to redeem the notes sequentially. Upon the breach of the overcollateralization (OC) test as outlined in the **security** agreement, excess

**interest** will be used to redeem the notes in reverse sequential order. In the event that both OC and IC tests are failing, the notes will be redeemed sequentially to cure the IC test first.

The **asset** manager, Vanderbilt, will **purchase** all investments for the portfolio on behalf of the co-issuers, which are special purpose companies incorporated under the laws of the Cayman Islands and State of Delaware, respectively. The asset manager will monitor the portfolio in accordance with specific investment restrictions as outlined in the governing documents.

For more information on this transaction, see the presale report titled 'Streeterville ABS CDO,' available on the Fitch Ratings web site at 'www.fitchratings.com'.

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**Publisher Name:** Business Wire

**Industry Names:** BUSN (Business); BUS (Business, general )

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106/9/3 (Item 3 from file: 16)

11038262 **Supplier Number:** 113603676

Final Results.

PR Newswire , p NA

Feb 25 , 2004

**Language:** English **Record Type:** Fulltext

**Document Type:** Newswire ; Trade

**Word Count:** 6317

**Text:**

FEBRUARY 25, 2004

RELEASE OF CARNIVAL CORPORATION & PLC ANNUAL REPORT ON FORM 10-K A  
ND

PRELIMINARY ANNOUNCEMENT OF CARNIVAL PLC FINANCIAL INFORMATION FOR THE ELEV  
EN

MONTHS ENDED NOVEMBER 30, 2003  
-----

Carnival Corporation & plc announced its fourth quarter and annual  
results

of operations in its earnings release issued on December 18, 2003. As requ  
ired

by the UK Listing Authority ("UKLA"), Carnival Corporation & plc is her  
eby

announcing that it has filed with the U.S. Securities and Exchange Commission

("SEC") a joint Annual Report on Form 10-K today containing the Carnival Corporation & plc 2003 annual financial statements, which results remain

unchanged from those previously announced on December 18, 2003. However, Carnival Corporation & plc has updated its fiscal 2004 outlook, which update is included in Schedule A.

The information included in the attached Schedules A and B is extracted

from the Form 10-K and has been prepared in accordance with SEC rules and regulations. Schedules A and B contain the audited annual consolidated financial

statements for Carnival Corporation & plc as of and for the twelve months ended

November 30, 2003, together with management's discussion and analysis of financial condition and results of operations. These Carnival Corporation & plc

consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States ("U.S. GAAP"), and

include the consolidated results of Carnival Corporation from December 1, 2002

to November 30, 2003 and prior years comparative data and the consolidated results of Carnival plc (formerly known as P&O Princess Cruises plc) from April

17, 2003 to November 30, 2003. The boards and management believe that this Carnival Corporation & plc U.S. GAAP financial information is the most meaningful presentation to shareholders of both Carnival Corporation and Carnival plc as it presents the financial condition and results of operations of

the dual listed company, Carnival Corporation & plc, in which both groups of shareholders hold their economic interest.

In addition, in accordance with the requirements of the UKLA, the Directors

are today presenting in the attached Schedule C the preliminary announcement of

final results for Carnival plc for the eleven month period ended November 30,

2003. The Carnival plc group standalone financial information excludes the results of Carnival Corporation and is prepared under UK GAAP. The financial

information set out within Schedule C does not constitute Carnival plc's statutory accounts for the periods ended December 31, 2002 and November 30,

2003. Statutory accounts for 2002 have been delivered to the registrar of companies, whereas those for 2003 will be delivered following Carnival plc's

annual general meeting. The auditors have reported on those accounts; their

reports were unqualified and did not contain statements under section 237(2)

or (3) of the Companies Act 1985.

MEDIA CONTACTS:  
US

INVESTOR RELATIONS CONTACTS:  
US/UK

Carnival Corporation & plc  
c  
Tim Gallagher  
001 305 599 2600, ext. 16000  
  
UK  
Brunswick Group  
Sophie Fitton/Sarah Tovey  
020 7404 5959

Carnival Corporation & plc  
Beth Roberts  
001 305 406 4832  
  
UK  
Bronwen Griffiths  
023 8052 5231

The full joint Annual Report on Form 10-K (including the portion extracted

for this release) is available for viewing on the SEC Web site at [www.sec.gov](http://www.sec.gov)

under Carnival Corporation or Carnival plc, the Carnival Corporation Web site at

[www.carnivalcorp.com](http://www.carnivalcorp.com) and the Carnival plc Web site at [www.carnivalplc.com](http://www.carnivalplc.com).  
A

copy of the joint Annual Report on Form 10-K will be available shortly at the

UKLA Document Viewing Facility of the Financial Services Authority at 25 The

North Colonnade, London E14 5HS.

Carnival Corporation & plc

Carnival Corporation & plc is the largest cruise vacation group in the world, with a portfolio of 12 cruise brands in North America, Europe and Australia, comprised of Carnival Cruise Lines, Holland America Line, Princess Cruises, Windstar Cruises, Seabourn Cruise Line, AIDA, Costa Cruises, Cunard Line, Ocean Village, P&O Cruises, Swan Hellenic and P&O Cruises Australia.

Together, these brands operate 73 ships totalling more than 118,000 lower berths with 11 new ships scheduled for delivery between now and mid-2006. Carnival Corporation & plc also operates the leading tour companies in Alaska and the Canadian Yukon, Holland America Tours and Princess Tours. Traded on both the New York and London Stock Exchanges, Carnival Corporation & plc is the only group in the world to be included in both the S&P 500 and the FTSE 100 indices.

Additional information can be obtained via Carnival Corporation & plc's Web sites at [www.carnivalcorp.com](http://www.carnivalcorp.com) and [www.carnivalplc.com](http://www.carnivalplc.com) or by writing to Carnival plc at Carnival House, 5 Gainsford Street, London SE1 2NE, United Kingdom.

#### SCHEDULE A

##### CARNIVAL CORPORATION & PLC - MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS UNDER U.S. GAAP

###### Cautionary Note Concerning Factors That May Affect Future Results

Some of the statements contained in this 2003 Annual Report are "forward-looking statements" that involve risks, uncertainties and assumptions with respect to us, including some statements concerning future results, plans, outlook, goals and other events which have not yet occurred. These statements are intended to qualify for the safe harbors from liability provided by Sec

tion

27A of the Securities Act of 1933, as amended, and Section 21E of the Securities

Exchange Act of 1934. You can find many, but not all, of these statements by

looking for words like "will," "may," "believes," "expects," "anticipates," "forecast," "future," "intends," "plans," and "estimates" and for similar expressions.

Because forward-looking statements involve risks and uncertainties, there

are many factors that could cause our actual results, performance or achievements to differ materially from those expressed or implied in this 2003

Annual Report. Forward-looking statements include those statements which may

impact the forecasting of our earnings per share, net revenue yields, booking

levels, pricing, occupancy, operating, financing and tax costs, costs per available lower berth day, estimates of ship depreciable lives and residual

values, outlook or business prospects. These factors include, but are not limited to, the following:

- achievement of expected benefits from the DLC transaction;
- risks associated with the DLC structure;
- risks associated with the uncertainty of the tax status of the DLC structure;
- general economic and business conditions, which may impact levels of disposable income of consumers and net revenue yields for our cruise brands;
- conditions in the cruise and land-based vacation industries, including competition from other cruise ship operators and providers of other vacation alternatives and increases in capacity offered by cruise ship and land-based vacation alternatives;
- the impact of operating internationally;
- the international political and economic climate, armed conflicts, terrorist attacks, availability of air service and other world events and adverse publicity, and their impact on the demand for cruises;
- accidents and other incidents affecting the health, safety, security and vacation satisfaction of passengers;

- our ability to implement our shipbuilding programs and brand strategies and to continue to expand our business worldwide;
- our ability to attract and retain qualified shipboard crew and maintain good relations with employee unions;
- our ability to obtain financing on terms that are favorable or consistent with our expectations;
- the impact of changes in operating and financing costs, including changes in foreign currency and **interest** rates and fuel, food, payroll, insurance and **security** costs;
- changes in the tax, environmental, health, safety, security and other regulatory regimes under which we operate;
  - continued availability of attractive port destinations;
- our ability to successfully implement cost improvement plans and to integrate business acquisitions;
- continuing financial viability of our travel agent distribution system;
  - weather patterns or natural disasters; and
- the ability of a small group of shareholders to effectively control the outcome of shareholder voting.

Forward-looking statements should not be relied upon as a prediction of actual results. Subject to any continuing obligations under applicable law or

any relevant listing rules, we expressly disclaim any obligation to disseminate,

after the date of this 2003 Annual Report, any updates or revisions to any such

forward-looking statements to reflect any change in expectations or events, conditions or circumstances on which any such statements are based.

#### Executive Overview

Over the past three years our net revenue yields have declined (see "Key

Performance Indicators" below). We believe this decline has been a result of a

number of factors affecting consumers' vacation demand including, among other

things, armed conflicts in the Middle East and elsewhere, terrorist attacks in

the U.S. and elsewhere, minor passenger and crew illnesses, the uncertain

worldwide economy and adverse publicity surrounding these and other events.

In

addition to these concerns, the recent large increase in new ship capacity in

the cruise industry over this period has intensified competition to attract customers from land-based vacation alternatives, which has also contributed to lower cruise ticket prices.

In addition to the lower pricing trends over this period, the cruise industry has also experienced historically high fuel costs; significant increases in insurance and security costs, precipitated by the events of September 11, 2001; and higher environmental costs, resulting primarily from upgrading environmental compliance programs. It is possible that some of these increasing cost trends will continue in the future. However, as we have done in the past, we expect to be able to partially offset these increases through the continuing benefits of scale, as well as cost containment measures.

The factors mentioned above have put pressure on our earnings over this period, especially since most of our costs are largely fixed once we put a ship into service. Although it is impossible to quantify the financial impact on us of each of the foregoing factors, these events adversely impacted the entire leisure and travel industry in general, and the cruise industry and us in particular.

During 2003, we were able to complete the largest acquisition in our history, the DLC transaction with P&O Princess. We have made significant progress in integrating our two organizations, including announcing the expected redeployment in late 2004 of CCL's Jubilee to the P&O Cruises Australia fleet, the transfer of a Holland America newbuild shipyard slot to Princess for a new ship deployment in 2006, the consolidation of our German and London office operations and the sale of our German river boat business ,



global procurement savings and the implementation of many best practices among

our brands. As a result, we are well on our way to realizing the \$100 million

of annual DLC transaction synergies we initially targeted.

In addition, during the second half of 2003, we saw a strong rebound in

our booking volumes, which commenced shortly after the conclusion of the Iraqi

war, although our cruise ticket prices were still somewhat lower than last year.

As mentioned above, the entire cruise industry had a large increase in capacity during this three year period, including our introduction of seven new ships into service during 2003. Even with our 17.5% pro forma capacity increase in fiscal 2003, we were able to maintain our occupancy level at over

103%. As a large part of our operating costs are fixed in nature, we strategically manage our prices to enable us to fill our ships at the highest

possible prices, since incremental passengers contribute to our fixed costs.

Our ability to maintain these high occupancy levels helped us to achieve an increasing level of onboard and other revenues, which partially offset the impact of lower cruise ticket prices.

Throughout this period, despite the adverse external travel and leisure

environment and the significant increase in cruise industry capacity, we

generated significant cash flows. These results provide an indication of the

strength of our business. However, our operations are subject to many risks,

as briefly noted above and under the caption "Cautionary Note Concerning

Factors That May Affect Future Results," which could significantly impact our

future results.

The year over year percentage increases in Carnival Corporation & plc's

available lower berth day ("ALBD") capacity for fiscal 2004 (versus fiscal 2003 pro forma ALBD, assuming that the DLC transaction was completed and Carnival plc was consolidated for the full period in 2003), 2005 and 2006, resulting primarily from new ships entering service, is currently expected to be 17.5%, 9.2% and 5.3%, respectively.

We believe that given a more stable geopolitical environment, our net revenue yields will increase in 2004, despite the expected significant increase in our 2004 passenger capacity.

#### Outlook For Fiscal 2004 ("2004")

As of December 18, 2003, we said that we expected our first quarter 2004 earnings per share to be in the range of \$0.17 to \$0.20 versus 2003 pro forma first quarter earnings per share of \$0.16 (\$0.18 less a \$0.02 per share non-recurring gain from insurance settlements). We also said that we were comfortable with consensus earnings estimates for the 2004 year, which at that time was \$1.98 per share, assuming no significant geopolitical or economic shocks.

Since early January, the cruise industry has entered the "wave season" (a period of higher booking levels than during the rest of the year). As we had expected, bookings during this year's wave season have been significantly higher than during the comparable period last year, which was adversely impacted by the build up to the war in Iraq. Since the beginning of January, company wide booking levels have been running 59% higher than during the same period last year, which is significantly above the company's 17.5% proforma capacity increase for 2004.

We now expect that first quarter 2004 net revenue yields will increase 3% to 4% (versus an increase of 1% to 2% in our previous guidance) and net cruise costs per ALBD, will be at the low end of our previous guidance of an incre

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of 1% to 3%. The increase in expected net revenue yields is largely due to the weakening of the U.S. dollar, and to a lesser extent, higher than expected

pricing on close to sailing bookings. The weak dollar also had the effect of

increasing net cruise costs per ALBD, however that is expected to be more than

offset by lower than anticipated advertising costs, which is partially timing

and is expected to be expended later in the year, and lower than forecasted

fuel costs. We now expect first quarter 2004 earnings per share to be in the range of \$0.21 to \$0.22.

Net revenue yields for the year 2004 are now forecast to increase 5% to

7%, versus our previous forecast of an increase of 2% to 4%. The increase in

expected net revenue yields is largely due to weakness in the U.S. dollar (our

current guidance is based on an exchange rate of \$1.27 to the euro and \$1.84

to the sterling), and to a lesser extent, strengthening booking levels noted

during wave season. Net cruise costs per ALBD is forecast to increase 2% to

3% versus our earlier guidance of flat compared to 2003 proforma costs.

The increase in expected net cruise costs per ALBD is due to the weaker U.S. dollar.

Carnival Corporation's 2% Notes become convertible if the share price of

its common stock closes above \$43.05 for 20 days out of the last 30 trading days of the quarter. If the 2% Notes become convertible, earnings per share

for the full year 2004 will be reduced by \$0.02 per share. Assuming this dilution occurs, we are comfortable with the current consensus 2004 earnings

estimates of \$2.02 per share, assuming no geopolitical or economic shocks.

## Income Taxes

The new U.S. income tax regulations under Section 883 of the Internal Revenue Code have become effective for us in 2004. Although we are still in the process of analyzing the impact of these new rules on our operations, based upon our preliminary analysis, we currently estimate that their application will reduce our 2004 earnings per share by approximately \$0.02 to \$0.03.

## Key Performance Indicators

We use net cruise revenues per ALBD ("net revenue yields") and net cruise

costs per ALBD as significant non-GAAP financial measures of our cruise segment financial performance. We believe that net revenue yields are commonly used in the cruise industry to measure a company's revenue performance and pricing power. This measure is also used for revenue

management purposes. In calculating net revenue yields, we use net cruise revenues rather than gross cruise revenues. We believe that "net cruise revenues" is a more meaningful measure in determining revenue yield than gross

cruise revenues because it reflects the cruise revenues earned by us net of its most significant variable costs (travel agent commissions, cost of air transportation and certain other variable direct costs associated with onboard

revenues). Substantially all of our remaining cruise costs are largely fixed

once our ship capacity levels have been determined.

Net cruise costs per ALBD is the most significant measure we use to monitor our ability to control costs. In calculating this measure, we exclude

the same variable costs as described above, which are included in the calculation of net cruise revenues. This is done to avoid duplicating these

variable costs in the two non-GAAP financial measures described above.

## Critical Accounting Estimates

Our critical accounting estimates are those which we believe require our

most significant judgments about the effect of matters that are inherently uncertain. A discussion of our critical accounting estimates, the underlying

judgments and uncertainties used to make them and the likelihood that materially different estimates would be reported under different conditions or using different assumptions, is set forth below.

#### Ship Accounting

Our most significant assets are our ships and ships under construction, which represent 78% of our total assets. We make several critical accounting estimates dealing with our ship accounting. First, we compute our ships' depreciation expense, which represents 11.9% of our cruise operating expenses in fiscal 2003, which requires us to estimate the average useful life of each of our ships, as well as their residual values. Secondly, we account for ship improvement costs by capitalizing those costs, which we believe will add value to our ships and depreciate those improvements over their estimated useful lives. Finally, we account for the replacement or refurbishment of our ship components and recognize the resulting loss in our results of operations.

We determine the average useful lives of our ships based primarily on our estimates of the average useful lives of the ships' major component systems, such as cabins, main diesels, main electric, superstructure and hull. In addition, we consider, among other things, the impact of anticipated technological changes, long-term vacation market conditions and competition and historical useful lives of similarly-built ships. We have estimated our new ships' average useful lives at 30 years and their residual values at 15% of our original ship cost.

Given the very large and complex nature of our ships, ship accounting estimates require considerable judgment and are inherently uncertain. We do not have cost segregation studies performed to specifically componentize our

ship systems; therefore, our overall estimates of the relative costs of the  
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component systems are based principally on general and technical informatio  
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known about major ship component system lives and our knowledge of the crui  
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industry. In addition, we do not identify and track the depreciation of

specific component systems, but instead utilize estimates when determining  
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net cost basis of assets being replaced or refurbished. If materially  
different conditions existed, or if we materially changed our assumptions o  
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ship lives and residual values, our depreciation expense or loss on  
replacement or refurbishment of ship assets and net book value of our ships  
would be materially different. In addition, if we change our assumptions i  
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making our determinations as to whether improvements to a ship add value, t  
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amounts we expense each year as repair and maintenance costs could increase  
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partially offset by a decrease in depreciation expense, as less costs would  
have been initially capitalized to our ships. Our fiscal 2003 ship

depreciation expense would have increased by approximately \$18 million for  
every year we reduced our estimated average 30 year ship useful life. In  
addition, if our ships were estimated to have no residual value, our fiscal  
2003 depreciation expense would have increased by approximately \$78 million  
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Some ships in our fleet are over 30 years old.

We believe that the estimates we made for ship accounting purposes are  
reasonable and our methods are consistently applied and, accordingly, resul  
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in depreciation expense that is based on a rational and systematic method t  
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equitably allocate the costs of our ships to the periods during which servi  
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are obtained from their use. In addition, we believe that the estimates we  
made are reasonable and our methods consistently applied (1) in determining  
the average useful life and residual values of our ships; (2) in determinin  
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which ship improvement costs add value to our ships; and (3) in determining the net cost basis of ship component assets being replaced or refurbished. Finally, we believe our critical ship accounting estimates are generally comparable with those of other major cruise companies.

#### Asset Impairment

The impairment reviews of our ship and trademark assets and of our goodwill, which has been allocated to our reporting units, such as our cruise lines, require us to make significant estimates to determine the fair values, including the cash flows, of these assets or reporting units.

The determination of fair value includes numerous uncertainties, unless a viable actively traded market exists for the asset or for a comparable reporting unit, which is usually not the case for cruise ships, cruise lines

and trademarks. For example, in determining fair values of ships and cruise

lines utilizing discounted forecasted cash flows, significant judgments are made concerning, among other things, future net revenue yields, net cruise costs per ALBD, interest and discount rates, cruise itineraries, ship additions and retirements, technological changes, consumer demand,

governmental regulations and the effects of competition. In addition, third

party appraisers are sometimes used to determine fair values and some of their

valuation methodologies are also subject to similar types of uncertainties.

Also, the determination of fair values of reporting units using a price earnings multiple approach also requires significant judgments, such as determining reasonably comparable multiples. Finally, determining trademark

fair values also requires significant judgments in determining both the estimated trademark cash flows, and the appropriate royalty rates to be applied to those cash flows to determine their fair value. We believe that we

have made reasonable estimates and judgments in determining whether our ships,

goodwill and trademarks have been impaired. However, if there is a material change in the assumptions used in our determination of fair value or if the

re is a material change in the conditions or circumstances influencing fair value, we could be required to recognize a material impairment charge.

#### Contingencies

We periodically assess the potential liabilities related to any lawsuits or claims brought against us, as well as for other known unasserted claims,

including environmental, legal and tax matters. While it is typically very difficult to determine the timing and ultimate outcome of these matters, we use our best judgment to determine if it is probable that we will incur an expense related to the settlement or final adjudication of such matters and whether a reasonable estimation of such probable loss, if any, can be made. In assessing probable losses, we make estimates of the amount of insurance recoveries, if any. We accrue a liability when we believe a loss is probable and the amount of the loss can be reasonably estimated, in accordance with the provisions of SFAS No. 5, "Accounting for Contingencies," as amended. Such

accruals are typically based on developments to date, management's estimates of the outcomes of these matters, our experience in contesting, litigating and settling other similar matters and any related insurance coverage. See Notes 9 and 14 in the accompanying financial statements for additional information concerning our contingencies.

Given the inherent uncertainty related to the eventual outcome of these matters and potential insurance recoveries, it is possible that all or some of these matters may be resolved for amounts materially different from any provisions or disclosures that we may have made with respect to their resolution. In addition, as new information becomes available, we may need to



reassess the amount of probable liability that needs to be accrued related to

our contingencies. All such revisions in our estimates could materially impact our results of operations and financial position.

#### Property, Plant and Equipment Draft Statement of Position

In late 2003, the Accounting Standards Executive Committee issued a new

Statement of Position draft, entitled "Accounting for Certain Costs and Activities Related to Property, Plant and Equipment" ("PP&E SOP"), the adoption of which is subject to the final clearance of the FASB. If issued in

its new form, the PP&E SOP would allow us the choice of selecting the level at

which we componentize our ships, as long as the identified components are at or

below the "functional unit level", which is the ship itself. If we elect to identify and track ship components below the ship level, the PP&E SOP will

require us, among other things, to maintain very detailed historical cost records for these ship parts and determine separate depreciable lives for each component, which may result in changes in the amount and timing of depreciation and repair and maintenance expenses and the amount of loss recognized on the replacement or refurbishment of ship parts.

Alternatively, the PP&E SOP allows us to identify our entire ship as one

component; however, electing each ship as one component will require us to expense as incurred all otherwise capitalizable expenditures incurred after the ship is placed into service, rather than capitalize and depreciate these

expenditures over their estimated useful lives. In addition, the PP&E SOP will

require us to expense our dry-dock costs as incurred, instead of amortizing our dry-dock costs to expense generally over one year.

We have not decided what level of componentization we will choose nor have we completed an analysis of the impact this PP&E SOP would have on our financial statements, although it may be material, dependent upon the

alternatives we choose in relation to identifying components. The PP&E SOP is

expected to be effective for fiscal years beginning after December 15, 2004 (fiscal 2006 for us), with earlier application encouraged.

#### Results of Operations

We earn our cruise revenues primarily from the following:

- sales of passenger cruise tickets and, in some cases, the sale of air and other transportation to and from our ships. The cruise ticket price includes accommodations, meals, entertainment and many onboard activities, and
- the sale of goods and/or services primarily on board our ships, which include bar and beverage sales, casino gaming, shore excursions, gift shop and spa sales, photo and art sales and pre-and post cruise land packages. These activities are either performed directly by us or by independent concessionaires, from which we receive a percentage of their revenues.

We incur cruise operating costs and expenses for the following:

- the costs of passenger cruise tickets which represent costs that vary directly with passenger cruise ticket revenues, and include travel agent commissions, air and other travel related costs and credit card fees,
- onboard and other cruise costs which represent costs that vary directly with onboard and other revenues, and include the costs of liquor and beverages, costs of tangible goods sold from our gift, photo and art auction activities, pre-and post cruise land packages and credit card fees. Concession revenues do not have any significant amount of costs associated with them, as the costs and services

incurred for these activities are provided by our concessionaires

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- payroll and related costs which represent costs for all our shipboard personnel, including deck and engine officers and crew and hotel and administrative employees,
- food costs which include both our passenger and crew food costs, and
- other ship operating costs which include fuel, repairs and maintenance, port charges, insurance, entertainment and all other shipboard operating costs and expenses.

We do not allocate payroll and related costs, food costs or other ship operating costs to the passenger cruise ticket costs or to onboard and other cruise costs since they are incurred to support the total cruise experience and do not vary significantly with passenger levels.

For segment information related to our revenues, expenses, operating income and other financial information see Note 13 in the accompanying financial statements. Operations data expressed as a percentage of total revenues and selected statistical information were as follows (a):

	Years Ended November 30,		
	-----		
	2003	2002	20
01			
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Revenues			
Cruise			
Passenger tickets	75.0%	76.3%	77
.6%			
Onboard and other	21.1	20.5	18
.5			
Other	3.9	3.2	3
.9			
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.0	100.0	100.0	100

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--	Costs and Expenses			
	Operating			
	Cruise			
.9	Passenger tickets	15.2	15.0	17
.6	Onboard and other	3.4	2.7	2
.1	Payroll and related	11.1	10.5	10
.8	Food	5.8	5.8	5
.2	Other ship operating	18.4	16.7	15
.0	Other	2.9	2.5	3
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	Total	56.8	53.2	54
.6				
	Selling and administrative	13.9	13.9	13
.6				
	Depreciation and amortization	8.7	8.7	8
.2				
	Impairment charge		0.4	3
.0				
	Loss from affiliated operations, net			1
.0				
		-----	-----	---
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	Operating Income	20.6	23.8	19
.6				
	Nonoperating (Expense) Income, Net	(2.4)	(1.9)	0
.5				
		-----	-----	---
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	Income Before Income Taxes	18.2	21.9	20
.1				
	Income Tax (Expense) Benefit, Net	(0.4)	1.3	0
.3				
		-----	-----	---
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Net Income	17.8%	23.2%	20
.4%			
	=====	=====	=====
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#### Selected Statistical Information

Passengers carried (in thousands)	5,038	3,549	3,385
Occupancy percentage (b)	103.4%	105.2%	104.7%

(a) The information presented above includes the results of Carnival plc since

April 17, 2003. See below for discussion of pro forma results.

(b) In accordance with cruise industry practice, occupancy percentage is calculated using a denominator of two passengers per cabin even though some cabins can accommodate three or more passengers. The percentages in

excess of 100% indicate that more than two passengers occupied some cabins.

#### Fiscal 2003 ("2003") Compared To Fiscal 2002 ("2002")

Given that our reported results for 2003 include the results of Carnival

plc for only the last seven and one-half months of 2003 and the preceding year

does not include any of Carnival plc's results, we believe that the most

meaningful presentation of our operating performance measures for 2003 is on a

pro forma basis, which reflects the results of both Carnival Corporation and

Carnival plc for the entirety of both years. Accordingly, we have disclosed

pro forma information, as well as the required reported information, in the discussion of our results of operations.

#### Revenues

Cruise revenues increased \$2.22 billion, or 52.2%, to \$6.46 billion in 2003 from \$4.24 billion in 2002. Approximately \$1.75 billion of our cruise revenue increase was due to the consolidation of Carnival plc and \$462 million

(a 10.9% increase over 2002) was due to increased revenues from Carnival Corporation's cruise brands. Carnival Corporation's increase in cruise revenues resulted primarily from a 17.3% increase in its standalone ALBD capacity in 2003 compared to 2002, partially offset by lower cruise ticket prices and, to a lesser extent, a reduced number of passengers purchasing air transportation from Carnival Corporation.

Included in onboard and other revenues were concession revenues of \$198 million in 2003 and \$154 million in 2002.

Our pro forma ALBD capacity increase was 17.5% in 2003 compared to 2002.

Pro forma gross revenue yields (gross revenue per ALBD) declined 3.8% (reported declined 2.1%) in 2003 compared to 2002 primarily for the same reasons as the decline in net revenue yields discussed below. Pro forma net revenue yields declined 3.2% (reported declined 3.4%) in 2003 compared to 2002

largely because of lower cruise ticket prices and, to a lesser extent, lower

occupancy levels. Our revenue yields were adversely affected by consumer concerns about travel during the period leading up to the war with Iraq and its eventual outbreak, the uncertain world economy and the increase in cruise

industry capacity. Finally, our pro forma net revenue yields in 2003 were favorably impacted by the strengthening of the euro and sterling against the dollar.

Other non-cruise revenues increased \$169 million, or 96.0%, to \$345 million in 2003 from \$176 million in 2002 due to the consolidation of Princess

Tours and P&O Travel Ltd.

#### Costs and Expenses

Total cruise operating expenses increased \$1.40 billion, or 63.1%, to \$3.62 billion in 2003 from \$2.22 billion in 2002. Approximately \$1.02 billion

of our increase was due to the consolidation of Carnival plc, and the remaining \$380 million (a 17.1% increase over 2002) of the increase was from

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Carnival Corporation. Carnival Corporation's increase was primarily a result

of the impact of the 17.3% increase in its standalone ALBD capacity in 2003 compared to 2002. In addition, higher fuel prices added approximately \$44 million to the Carnival Corporation standalone expenses in 2003 compared to 2002. Finally, the increase in each of the individual cruise operating expense line items was primarily a result of the same factors as discussed above. Pro forma cruise operating expenses increased \$655 million, or 18.4%,

to \$4.2 billion in 2003 from \$3.57 billion in 2002 primarily as a result of the 17.5% increase in pro forma ALBD capacity and higher fuel costs.

Other non-cruise operating expenses increased \$135 million, or 93.1%, to

\$280 million in 2003 from \$145 million in 2002 due to the consolidation of Princess Tours and P&O Travel Ltd.

Cruise selling and administrative expenses increased \$319 million, or 55.3%, to \$896 million in 2003 from \$577 million in 2002. Approximately \$247

million of our increase was due to the consolidation of Carnival plc and the

remaining \$72 million (a 12.5% increase over 2002) of the increase was from Carnival Corporation, which was primarily due to the 17.3% increase in standalone ALBD capacity. Pro forma cruise selling and administrative

expenses, excluding Carnival plc nonrecurring DLC transaction expenses,

increased \$142 million, or 15.6%, to \$1.05 billion from \$912 million in 2002,

primarily as a result of the 17.5% increase in pro forma ALBD capacity,

partially offset by the benefits of scale and synergy savings from the DLC transaction.

Pro forma gross cruise costs per ALBD increased by 0.2% (reported increased 3.9%) in 2003 compared to 2002. Pro forma net cruise costs per ALBD

increased 2.9% (reported increased 4.0%) in 2003 compared to 2002. Pro forma

gross and net cruise costs per ALBD in 2003 compared to 2002 were higher

largely because of higher fuel costs. Finally, our pro forma net cruise co

sts

were unfavorably affected by the weakening of the dollar against the euro and sterling.

Depreciation and amortization increased by \$203 million, or 53.1%, to \$585 million in 2003 from \$382 million in 2002. A large portion of this increase was from the consolidation of Carnival plc, which accounted for approximately \$126 million of the increase. The majority of the remaining increase was a result of the expansion of the Carnival Corporation fleet and ship improvement expenditures. Pro forma depreciation and amortization expense increased by \$120 million, or 22.5%, to \$654 million from \$534 million largely due to the expansion of the combined fleet and ship improvement expenditures.

#### Nonoperating (Expense) Income

Interest expense, net of interest income and excluding capitalized interest, increased to \$217 million in 2003 from \$118 million in 2002, or \$99 million, which increase was comprised primarily of a \$125 million increase in interest expense from our increased level of average borrowings, partially offset by a \$31 million decrease in interest expense due to lower average borrowing rates. The higher average debt balances were primarily a result of our consolidation of Carnival plc's debt (see Note 7 in the accompanying financial statements) and new ship deliveries. Capitalized interest increased \$10 million during 2003 compared to 2002 due primarily to higher average levels of investments in ship construction projects.

Other income was \$8 million in 2003, which included \$19 million from net insurance proceeds, \$10 million as a result of Windstar's Wind Song casualty loss and \$9 million as a reimbursement of expenses incurred in prior years, partially offset by \$13 million related to a DLC-related litigation matter.



## Income Taxes

The income tax provision of \$29 million in 2003 was primarily due to the consolidation of Carnival plc's U.S. based Princess Tours and Costa's Italian taxable income.

Fiscal 2002 ("2002") Compared to Fiscal 2001 ("2001")

## Revenues

Cruise revenues decreased \$127 million, or 2.9%, to \$4.24 billion in 2002 from \$4.37 billion in 2001. Our cruise revenue change resulted from a 7.0% decrease in our gross revenue per passenger cruise day, partially offset by a 3.6% increase in passenger capacity and a 0.5% increase in our occupancy rate.

This decrease in our gross revenue per passenger cruise day was primarily caused by a significant decline in the number of guests purchasing air transportation from us in 2002 compared to 2001. When a guest elects to provide his or her own transportation, rather than purchasing air transportation from us, both our cruise revenues and operating expenses decrease by approximately the same amount. Also adding to the reduction in gross revenue per passenger cruise day was the adverse impact of the September 11, 2001 events, which resulted in lower cruise ticket prices. Net revenue yield was down 2.7% (gross revenue yield was down 6.3%) in 2002 compared to 2001.

Included in onboard and other revenues were concession revenues of \$154 million in 2002 and \$136 million in 2001.

Other revenues, which consisted of Holland America Tours decreased \$53 million, or 23.1%, to \$176 million in 2002 from \$229 million in 2001 principally due to a lower number of Alaska and Canadian Yukon cruise/tours sold. This revenue decrease was primarily as a result of one less ship offering land tours to its guests in 2002 compared to 2001 and increased competition. In addition, three isolated cancellations of Holland America Alaska cruises in 2002 resulting primarily from mechanical malfunctions als

o contributed to this decrease in revenues.

#### Costs and Expenses

Total cruise operating costs decreased by \$125 million, or 5.3%, to \$2.22 billion in 2002 from \$2.35 billion in 2001. Approximately \$116 million of this decrease was due to reduced air travel and related costs primarily due to fewer guests purchasing air transportation through us, and \$41 million was primarily due to lower commissions because of lower cruise revenues. This decrease was partially offset by an increase in fuel and other cruise operating expenses, which was largely due to costs associated with our 3.6% increase in passenger capacity. Net cruise operating costs per ALBD decreased 2.4% (gross cruise operating costs per ALBD decreased 7.8%), partially as a result of the cost reduction initiatives we undertook after the events of September 11, 2001.

Other operating expenses, which consisted of Holland America Tours, decreased \$41 million, or 22.0%, to \$145 million in 2002 from \$186 million in 2001 principally due to the reduction in the number of cruise/tours sold.

Selling and administrative expenses decreased \$10 million, or 1.6%, to \$609 million in 2002 from \$619 million in 2001. Selling and administrative expenses decreased in 2002 primarily because of our 4.7% decrease in cruise selling and administrative costs per ALBD, partially offset by additional expenses associated with our 3.6% increase in passenger capacity. Our costs per ALBD decreased partially because of the cost containment actions taken after September 11, 2001.

Depreciation and amortization increased by \$10 million, or 2.7%, to \$382 million in 2002 from \$372 million in 2001. Depreciation and amortization in 2002 compared to 2001 increased by \$30 million primarily as a result of the expansion of our fleet and ship improvement expenditures, partially offset by

the elimination of \$20 million of annual goodwill amortization upon our adoption of SFAS No. 142 on December 1, 2001 (see Note 2 in the accompanying financial statements).

See Notes 5 and 6 in the accompanying financial statements for a discussion of the 2002 and 2001 impairment charge and 2001 affiliated operations.

#### Nonoperating (Expense) Income

Interest income decreased by \$2 million in 2002 compared to 2001, which was comprised of a \$25 million reduction in interest income due to lower average interest rates, partially offset by a \$23 million increase in interest income from our higher average invested cash balances. Interest expense was the same in 2002 and in 2001, which was comprised of a \$22 million increase in interest expense due to our increased level of average borrowings, offset by a \$22 million reduction in interest expense due to lower average borrowing rates. The higher level of average borrowings in 2002 were due primarily from the issuance of our convertible notes in April and October 2001. Capitalized interest increased \$10 million during 2002 compared to 2001 due primarily to higher average levels of investments in ship construction projects.

Other expense in 2002 of \$4 million consisted primarily of a \$8 million loss, including related expenses, resulting from the sale of Holland America Line's former Nieuw Amsterdam, partially offset by \$4 million of income related to the termination of an over funded pension plan.

#### Income Taxes

The income tax benefit of \$57 million recognized in 2002 was substantially all due to an Italian investment incentive law, which allowed Costa to receive an income tax benefit of \$51 million based on contractual expenditures during 2002 on the construction of a new ship.

#### Liquidity and Capital Resources

## Sources and Uses of Cash

Our business provided \$1.93 billion of net cash from operations during fiscal 2003, an increase of \$464 million, or 31.6%, compared to fiscal 2002, due primarily to the consolidation of Carnival plc. We continue to generate substantial cash from operations and remain in a strong financial position.

During fiscal 2003, our net expenditures for capital projects were \$2.52 billion, of which \$2.25 billion was spent for our ongoing new shipbuilding program. The remaining capital expenditures consisted primarily of \$133 million for ship improvements and refurbishments, and \$130 million for Alaska tour assets, cruise port facility developments and information technology assets.

During fiscal 2003, we borrowed net proceeds of \$1.08 billion primarily to finance a portion of our shipbuilding programs and other capital expenditures, and for working capital purposes. Specifically, we issued 1.75% Notes and 3.75% unsecured notes for gross proceeds of \$1.12 billion, and we borrowed \$335 million for the acquisition of the Island Princess. We also paid cash dividends of \$292 million in fiscal 2003.

## Future Commitments and Funding Sources

At November 30, 2003, our contractual cash obligations, with initial or remaining terms in excess of one year, and the effects such obligations are expected to have on our liquidity and cash flow in future periods were as follows (in millions):

Payments Due by Fiscal Year							
-----							
Contractual Cash							
Obligations (a)	Total	2004	2005	2006	2007	2008	Thereaf ter
-----	-----	-----	-----	-----	-----	-----	-----
---							

Long-term debt	\$ 7,310	\$ 392	\$1,263	\$1,587	\$ 999	\$1,492	\$1,57
7							
Shipbuilding		4,994	2,982	1,237	775		
Port and other							
commitments	392	57	32	33	35	35	20
0							
Operating leases	276	57	49	36	26	23	8
5							
	-----	-----	-----	-----	-----	-----	-----
-							
Total contractual							
cash obligations	\$12,972	\$3,488	\$2,581	\$2,431	\$1,060	\$1,550	\$1,86
2							
	=====	=====	=====	=====	=====	=====	=====
=							

(a) See Notes 7, 8, 9 and 14 in the accompanying financial statements for additional information regarding our debt, shipbuilding and other contractual cash obligations and commitments and our contingent obligations.

At November 30, 2003, we had liquidity of \$3.92 billion, which consisted of \$1.07 billion of cash and cash equivalents, \$2.11 billion available for borrowing under our \$2.41 billion revolving credit facilities, and \$736 million under committed ship financing arrangements. Our revolving credit facilities mature in September 2005 with respect to \$710 million, and in May and June 2006 with respect to \$1.70 billion. A key to our access to liquidity is the maintenance of our strong credit ratings.

We believe that our liquidity, including cash and committed financings, and cash flow from future operations will be sufficient to fund most of our expected capital projects, debt service requirements, dividend payments, working capital and other firm commitments. However, our forecasted cash flow from future operations, as well as our credit ratings, may be adversely affected by various factors, including, but not limited to, those factors noted under "Cautionary Note Concerning Factors That May Affect Future Results." To the extent that we are required, or choose, to fund future ca

sh

requirements, including our future shipbuilding commitments, from sources other than as discussed above, we believe that we will be able to secure such

financing from banks or through the offering of debt and/or equity securities

in the public or private markets. No assurance can be given that our future operating cash flow will be sufficient to fund future obligations or that we

will be able to obtain additional financing, if necessary.

#### Off-Balance Sheet Arrangements

We are not a party to any off-balance sheet arrangements, including guarantee contracts, retained or contingent interests, certain derivative instruments and variable interest entities, that either have, or are reasonably likely to have, a current or future material effect on our financial statements.

#### Other Matters

#### Market Risks

We are principally exposed to market risks from fluctuations in foreign

currency exchange rates, bunker fuel prices and interest rates. We seek to minimize foreign currency and interest rate risks through our normal operating

and financing activities, including netting certain exposures to take advantage of any natural offsets, through our long-term investment and debt portfolio strategies and, when considered appropriate, through the use of derivative financial instruments. The financial impacts of these hedging instruments are generally offset by corresponding changes in the underlying exposures being hedged. Our policy is to not use financial instruments for trading or other speculative purposes.

#### Exposure to Foreign Currency Exchange Rates

One of our primary foreign currency exchange risks is related to our outstanding commitments under ship construction contracts denominated in a currency other than the functional currency of the cruise brand that is expected to be operating the ship. These currency commitments are affected by

fluctuations in the value of the functional currency as compared to the currency in which the shipbuilding contract is denominated. Foreign currency

forward contracts are generally used to manage this risk (see Notes 2, 8 and

12 in the accompanying financial statements). Accordingly, increases and decreases in the fair value of these foreign currency forward contracts offset

changes in the fair value of the foreign currency denominated ship construction commitments, thus resulting in the elimination of such risk.

We have forward foreign currency contracts for seven of our euro denominated shipbuilding contracts. At November 30, 2003, the fair value of

these forward contracts was an unrealized gain of \$363 million which is recorded, along with an offsetting \$363 million fair value liability related

to our shipbuilding firm commitments, on our accompanying 2003 balance sheet.

Based upon a 10% strengthening or weakening of the U.S. dollar compared to the

euro as of November 30, 2003, assuming no changes in comparative interest rates, the estimated fair value of these contracts would decrease or increase

by \$247 million, which would be offset by a decrease or increase of \$247 million in the U.S. dollar value of the related foreign currency ship construction commitments resulting in no net dollar impact to us.

The cost of shipbuilding orders that we may place in the future for our

cruise lines who generate their cash flows in a currency that is different than the shipyard's operating currency, generally the euro, is expected to be

affected by foreign currency exchange rate fluctuations. Given the recent decline in the U.S. dollar relative to the euro, the U.S. dollar cost to order

new cruise ships at current exchange rates has increased significantly. We currently have on order new cruise ships for delivery through 2006. Should the U.S. dollar remain at current levels or decline further, this may affect

our ability to order new cruise ships for 2007 or later years.

In addition to the foreign currency denominated operations of our Costa subsidiary, we have broadened our global presence as a result of Carnival plc's foreign operations. Specifically, our expanded international business operations through P&O Cruises, Ocean Village and Swan Hellenic in the UK and Aida in Germany subject us to an increasing level of foreign currency exchange risk related to the sterling and euro. These are the primary currencies for which we have U.S. dollar exchange rate exposures. Accordingly, these foreign currency exchange fluctuations against the dollar will affect our reported financial results since the reporting currency for our consolidated financial statements is the U.S. dollar and the functional currency for our international operations is generally the local currency. Any weakening of the U.S. dollar against these local functional currencies has the financial statement effect of increasing the U.S. dollar values reported for cruise revenues and cruise expenses in our consolidated financial statements. Strengthening of the U.S. dollar has the opposite effect. We will continue to monitor the effect of such exposures to determine if any additional actions, such as the issuance of additional foreign currency denominated debt or use of other financial instruments would be warranted to reduce such risk.

We consider our investments in foreign subsidiaries to be denominated in relatively stable currencies and/or of a long-term nature. However, we partially hedge these exposures by denominating our debt in our subsidiary's functional currency (generally euros or sterling). Specifically, we have \$815 million of cross currency swaps, whereby we have converted U.S. dollar debt to euro and sterling debt and euro debt to sterling debt, thus partially



offsetting this foreign currency exchange risk. At November 30, 2003, the fair value of these cross currency swaps was a loss of \$70 million, \$39 million of which is recorded in AOCI and offsets a portion of the gains recorded in AOCI upon translating these foreign subsidiaries net assets into U.S. dollars. Based upon a 10% hypothetical increase or decrease in the November 30, 2003 foreign currency exchange rate, we estimate that these contracts fair values would increase or decrease by \$82 million, which would be offset by a decrease or increase of \$82 million in the U.S. dollar value of our net investments.

#### Exposure to Bunker Fuel Prices

Other cruise ship operating expenses are impacted by changes in bunker fuel prices. Fuel consumed over the past three fiscal years ranged from approximately 5.5% in fiscal 2003 to 4.5% in fiscal 2002 and 4.2% in fiscal 2001 of our cruise revenues. We have typically not used financial instruments to hedge our exposure to the bunker fuel price market risk.

Based upon a 10% hypothetical increase or decrease in the November 30, 2003 bunker fuel price, we estimate that our fiscal 2004 bunker fuel cost would increase or decrease by approximately \$45 million.

#### Exposure to Interest Rates

In order to limit our exposure to interest rate fluctuations, we have entered into a substantial number of fixed rate debt instruments. We continuously evaluate our debt portfolio, including interest rate swap agreements, and make periodic adjustments to the mix of floating rate and fixed rate debt based on our view of interest rate movements. Accordingly in 2003 and 2001, we entered into fixed to variable interest rate swap agreements, which lowered our fiscal 2003, 2002 and 2001 interest costs and are also expected to lower our fiscal 2004 interest costs. At November 30, 2003, 61% of the interest cost on our debt was effectively fixed and 39% was variable, including the effect of our interest rate swaps.

At November 30, 2003, our long-term debt had a carrying value of \$7.31

billion. At November 30, 2003, our interest rate swap agreements effectively changed \$1.19 billion of fixed rate debt to Libor-based floating rate debt. In addition, interest rate swaps at November 30, 2003 effectively changed \$760 million of euribor floating rate debt to fixed rate debt. The fair value of our long-term debt and interest rate swaps at November 30, 2003 was \$7.69 billion. Based upon a hypothetical 10% decrease or increase in the November 30, 2003 market interest rates, the fair value of our long-term debt and swaps would increase or decrease by \$128 million. In addition, based upon a hypothetical 10% decrease or increase in our November 30, 2003 common stock price, the fair value of our convertible notes would increase or decrease by approximately \$97 million.

These hypothetical amounts are determined by considering the impact of the hypothetical interest rates and common stock price on our existing long-term debt and interest rate swaps. This analysis does not consider the effects of the changes in the level of overall economic activity that could exist in such environments or any relationships which may exist between interest rate and stock price movements. Furthermore, since substantially all of our fixed rate long-term debt cannot currently be called or prepaid and some of our variable rate long-term debt is subject to interest rate swaps which effectively fix the interest rate, it is unlikely we would be able to take any significant steps in the short-term to mitigate our exposure in the unlikely event of a significant decrease in market interest rates.

#### REPORTED GAAP RECONCILING INFORMATION

Gross and net revenue yields were computed as follows:

	Years Ended November 30,		
	-----		
	2003	2002	2001

(in millions, except ALBDs and yields)

Cruise revenues				
0	Passenger tickets	\$5,039	\$3,346	\$3,530
1	Onboard and other	1,420	898	841
		-----	-----	-----
-				
1	Gross cruise revenues	6,459	4,244	4,371
Less cruise costs				
3)	Passenger tickets	(1,021)	(658)	(813)
6)	Onboard and other	(229)	(116)	(116)
		-----	-----	-----
-				
2	Net cruise revenues	\$5,209	\$3,470	\$3,442
		=====	=====	=====
=				
3	ALBDs (a)	33,309,785	21,435,828	20,685,123
		=====	=====	=====
=				
3	Gross revenue yields (b)	\$193.91	\$198.01	\$211.33
		=====	=====	=====
=				
4	Net revenue yields (c)	\$156.38	\$161.91	\$166.44
		=====	=====	=====
=				

Gross and net cruise costs per ALBD were computed as follows:

Years Ended November 30,		
-----		
2003	2002	200

1

-

(in millions, except ALBDs and costs per AL  
BD)

Cruise operating expenses	\$3,624	\$2,222	\$2,34
---------------------------	---------	---------	--------

7

Cruise selling and

administrative expenses	896	577	58
-------------------------	-----	-----	----

4

-

Gross cruise costs	4,520	2,799	2,93
--------------------	-------	-------	------

1

Less cruise costs

Passenger tickets	(1,021)	(658)	(81
-------------------	---------	-------	-----

3)

Onboard and other	(229)	(116)	(11
-------------------	-------	-------	-----

6)

-

Net cruise costs	\$3,270	\$2,025	\$2,00
------------------	---------	---------	--------

2

=

ALBDs (a)	33,309,785	21,435,828	20,685,12
-----------	------------	------------	-----------

3

=

Gross cruise costs per ALBD (d)	\$135.69	\$130.54	\$141.6
---------------------------------	----------	----------	---------

6

=

Net cruise costs per ALBD (e)	\$98.16	\$94.43	\$96.7
-------------------------------	---------	---------	--------

6

=

#### PRO FORMA GAAP RECONCILING INFORMATION

Pro forma gross and net revenue yields, assuming that the DLC transact

ion

was completed and Carnival plc was consolidated for the full years noted below, would have been computed as follows (f):

	Years Ended November 30,	
	2003	2002
	----	----
(in millions, except ALBDs and yields)		
Cruise revenues		
Passenger tickets	\$5,732	\$5,128
Onboard and other	1,600	1,356
	-----	-----
Gross cruise revenues	7,332	6,484
Less cruise costs		
Passenger tickets	(1,227)	(1,121)
Onboard and other	(279)	(240)
	-----	-----
Net cruise revenues	\$5,826	\$5,123
	=====	=====
ALBDs (a)	37,554,709	31,962,000
	=====	=====
Gross revenue yields (b)	\$195.23	\$202.85
	=====	=====
Net revenue yields (c)	\$155.11	\$160.25
	=====	=====

Pro forma gross and net cruise costs per ALBD would have been computed as follows (f):

	Years Ended November 30,	
	2003	2002
	----	----
(in millions, except ALBDs and costs per ALBD)		

Cruise operating expenses	\$4,222	\$3,567
Cruise selling and		
administrative expenses	1,054	912
	-----	-----
Gross cruise costs	5,276	4,479
Less cruise costs		
Passenger tickets	(1,227)	(1,121)
Onboard and other	(279)	(240)
	-----	-----
Net cruise costs	\$3,770	\$3,118
	=====	=====
ALBDs (a)	37,554,709	31,962,000
	=====	=====
Gross cruise costs per ALBD (d)	\$140.50	\$140.15
	=====	=====
Net cruise costs per ALBD (e)	\$100.38	\$97.55
	=====	=====

(a) Total passenger capacity for the period, assuming two passengers per cabin, that we offer for sale, which is computed by multiplying passenger

capacity by revenue-producing ship operating days in the period.

(b) Gross cruise revenues divided by ALBDs.

(c) Net cruise revenues divided by ALBDs.

(d) Gross cruise costs divided by ALBDs.

(e) Net cruise costs divided by ALBDs.

(f) The pro forma information gives pro forma effect for the DLC transaction

between Carnival Corporation and Carnival plc, which was completed on April 17, 2003, as if the DLC transaction had occurred on December 1, 2001. Management has prepared the pro forma information based upon the companies' reported financial information and, accordingly, the above information should be read in conjunction with the companies' financial statements.

1 The DLC transaction has been accounted for as an acquisition of Carniva  
plc by Carnival Corporation, using the purchase method of accounting.  
The Carnival plc accounting policies have been conformed to Carnival  
Corporation's policies. Carnival plc's reporting period has been chang  
ed to the Carnival Corporation reporting period and the information presen  
ted above covers the same periods of time for both companies.

t The above pro forma information has not been adjusted to reflect any ne  
s transaction benefits from the DLC transaction. In addition, it exclude  
the costs related to the terminated Royal Caribbean transaction and the  
completion of the DLC transaction with Carnival Corporation, which were  
expensed by Carnival plc prior to April 17, 2003. The exclusion of the  
se nonrecurring costs is consistent with the requirements of Article 11 of  
Regulation S-X. Finally, the pro forma information does not purport to  
e represent what the results of operations actually could have been if th  
DLC transaction had occurred on December 1, 2001 or what those results  
will be for any future periods.

The 2003 pro forma information is computed by adding four and one-half  
months of Carnival plc's results of operations, adjusted for SFAS  
No. 141 acquisition accounting adjustments, to the reported Carnival  
Corporation & plc results since the April 17, 2003 DLC transaction  
date.

2 The 2002 pro forma information is computed by adding Carnival plc's 200  
results, adjusted for acquisition adjustments, to the 2002 Carnival  
Corporation reported results. For additional information related to  
the pro forma statements of operations see Note 3 in the accompanying  
financial statements.

(g) We have not provided estimates of future gross revenue yields or gross  
cruise costs per ALBD because we are unable to provide reconciliations  
of

forecasted net cruise revenues to forecasted gross cruise revenues or forecasted net cruise costs to forecasted cruise operating expenses without unreasonable effort. The reconciliations would require us to forecast, with reasonable accuracy, the amount of air and other transportation costs that our forecasted cruise passengers would elect to purchase from us (the "air/sea mix"). Since the forecasting of future air/sea mix involves several significant variables and the revenues from the sale of air and other transportation approximate the costs of providing that transportation, management focuses primarily on forecasts of net cruise revenues and costs rather than gross cruise revenues and costs. This does not impact, in any material respect, our ability to forecast our future results, as any variation in the air/sea mix has no material impact on our forecasted net cruise revenues or forecasted net cruise costs.

#### SCHEDULE B

CARNIVAL CORPORATION & PLC - U.S. GAAP CONSOLIDATED FINANCIAL STATEMENTS

#### CARNIVAL CORPORATION & PLC CONSOLIDATED STATEMENTS OF OPERATIONS (in millions, except per share data)

	Years Ended November 30		
	-----		
	2003	2002	2001
	----	----	----
Revenues			
Cruise			
Passenger tickets	\$5,039	\$3,346	\$3,530
Onboard and other	1,420	898	841
Other	259	139	178



---	-----	-----	---
549	6,718	4,383	4,
---	-----	-----	---
Costs and Expenses			
Operating			
Cruise			
813 Passenger tickets	1,021	658	
116 Onboard and other	229	116	
459 Payroll and related	744	458	
265 Food	393	256	
694 Other ship operating	1,237	734	
135 Other	194	108	
---	-----	-----	---
482 Total	3,818	2,330	2,
619 Selling and administrative	932	609	
372 Depreciation and amortization	585	382	
140 Impairment charge		20	
44 Loss from affiliated operations, net			
---	-----	-----	---
657	5,335	3,341	3,
---	-----	-----	---
892 Operating Income	1,383	1,042	

---	-----	-----	---
Nonoperating (Expense) Income			
Interest income	27	32	
34			
Interest expense, net of			
capitalized interest	(195)	(111)	(1
21)			
Other income (expense), net	8	(4)	
109			
---	-----	-----	---
	(160)	(83)	
22			
---	-----	-----	---
Income Before Income Taxes	1,223	959	
914			
Income Tax (Expense) Benefit, Net	(29)	57	
12			
---	-----	-----	---
Net Income	\$1,194	\$1,016	\$
926			
===	=====	=====	===
Earnings Per Share			
Basic	\$1.66	\$1.73	\$1
.58			
---	=====	=====	===
Diluted	\$1.66	\$1.73	\$1
.58			
---	=====	=====	===
Dividends Per Share	\$0.44	\$0.42	\$0
.42			
---	=====	=====	===

===

The accompanying notes are an integral part of these consolidated financial statements.

CARNIVAL CORPORATION & PLC  
CONSOLIDATED BALANCE SHEETS  
(in millions, except par/stated values)

	November 30,	
	-----	
ASSETS	2003	2
002		
	-----	-
---		
Current Assets		
Cash and cash equivalents	\$ 1,070	\$
667		
Short-term investments	1	
39		
Accounts receivable, net	403	
108		
Inventories	171	
91		
Prepaid expenses and other	212	
149		
Fair value of derivative contracts	275	
Fair value of hedged firm commitments		
78		
	-----	----
---		
Total current assets	2,132	1,
132		
	-----	----
---		
Property and Equipment, Net	17,522	10,
116		
Goodwill	3,031	
681		
Trademarks	1,324	
Other Assets	345	
297		
Fair Value of Derivative Contracts	135	

Fair Value of Hedged Firm Commitments	2	
109		
---	-----	----
335	\$24,491	\$12,
	=====	=====
===		
LIABILITIES AND SHAREHOLDERS' EQUITY		
Current Liabilities		
Short-term borrowings	\$	94
Current portion of long-term debt	392	\$
155		
Accounts payable	645	
269		
Accrued liabilities	441	
290		
Customer deposits	1,352	
771		
Dividends payable	100	
61		
Fair value of hedged firm commitments		264
Fair value of derivative contracts	27	
74		
---	-----	----
Total current liabilities	3,315	1,
620		
---	-----	----
Long-Term Debt	6,918	3,
014		
Deferred Income and Other Long-Term Liabilities	299	
170		
Fair Value of Hedged Firm Commitments		103
Fair Value of Derivative Contracts	63	
113		
Commitments and Contingencies (Notes 8, 9 and 14)		
Shareholders' Equity		
Common stock of Carnival Corporation; \$.01 par value; 1,960 shares at 2003 and 960 at 2002 authorized; 630 shares at 2003 and		

587 shares at 2002 issued and outstanding	6	
6		
Ordinary shares of Carnival plc; \$1.66 stated value; 226 shares authorized; 210 shares issued	349	
Additional paid-in capital	7,163	1,
089		
Retained earnings	7,191	6,
326		
Unearned stock compensation	(18)	(
11)		
Accumulated other comprehensive income	160	
8		
Treasury stock; 42 shares of Carnival plc at cost	(1,058)	
	-----	----
---		
Total shareholders' equity	13,793	7,
418		
	-----	----
---		
	\$24,491	\$12,
335		
	=====	=====
===		

The accompanying notes are an integral part of these consolidated financial statements.

CARNIVAL CORPORATION & PLC  
CONSOLIDATED STATEMENTS OF CASH FLOWS  
(in millions)

	Years Ended November		
30,			
	-----		
---			
	2003	2002	20
01			
	----	----	--
--			
OPERATING ACTIVITIES			
Net income	\$1,194	\$1,016	\$ 9
26			
Adjustments to reconcile net income to net cash provided by operating activities			
Depreciation and amortization	585	382	3

72				
40	Impairment charge	20	1	
17)	Gain on sale of investments in affiliates, net		(1	
57	Loss from affiliated operations and dividends received			
2	Accretion of original issue discount	20	19	
19	Other	8	14	
	Changes in operating assets and liabilities, excluding business acquired (Increase) decrease in			
(7)	Receivables	(91)	(5)	
9	Inventories	(17)	2	
44	Prepaid expenses and other	82	(81)	
	Increase (decrease) in			
63)	Accounts payable	43	(12)	(
	Accrued and other liabilities	(16)	(28)	
43)	Customer deposits	125	142	(1
--		-----	-----	----
39	Net cash provided by operating activities	1,933	1,469	1,2
--		-----	-----	----
INVESTING ACTIVITIES				
27)	Additions to property and equipment	(2,516)	(1,986)	(8
31	Proceeds from sale of investments in affiliates			5
	Cash acquired from (expended for) the acquisition of Carnival plc, net	140	(30)	
15	Proceeds from retirement of property and equipment	51	4	
33)	Sale (purchase) of short-term investments, net	42	2	(

Other, net 28)	(50)	(10)	(
--	-----	-----	----
Net cash used in investing activities 42)	(2,333)	(2,020)	(3
--	-----	-----	----
FINANCING ACTIVITIES			
Proceeds from issuance of long-term debt 74	2,123	232	2,5
Principal repayments of long-term debt 71)	(1,137)	(190)	(1,9
Dividends paid 46)	(292)	(246)	(2
Proceeds from short-term borrowings, net Proceeds from issuance of common stock and ordinary shares 5		94	
	53	7	
Other 25)	(15)	(1)	(
--	-----	-----	----
Net cash provided by (used in) financing activities 37	826	(198)	3
--	-----	-----	----
Effect of exchange rate changes on cash and cash equivalents (2)	(23)	(5)	
--	-----	-----	----
Net increase (decrease) in cash and cash equivalents 32	403	(754)	1,2
Cash and cash equivalents at beginning of year 89	667	1,421	1
--	-----	-----	----
Cash and cash equivalents at end of year 21	\$1,070	\$ 667	\$1,4

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The accompanying notes are an integral part of these consolidated financial statements.

CARNIVAL CORPORATION & PLC  
CONSOLIDATED STATEMENTS OF SHAREHOLDERS' EQUITY  
(in millions)

	Compre-	Common	Ordinary	Additional	
	hensive	stock	shares	paid-in	Retain
	income			capital	earnin
	-----	-----	-----	-----	-----
Balances at November 30, 2000		\$6		\$1,773	\$4,884
Comprehensive income					
Net income	\$ 926				926
Foreign currency translation adjustment, net	46				
Unrealized gains on marketable securities, net	6				
Minimum pension liability adjustment	(6)				
Changes related to cash flow derivative hedges, net	(4)				
Transition adjustment for cash flow derivative hedges	(4)				
	-----				
Total comprehensive income	\$ 964				
	=====				
Cash dividends declared					(246)
) Issuance of stock under stock plans				32	
Amortization of unearned stock compensation					
Other					(8)
)					
	-----	-----	-----	-----	-----
Balances at November 30, 2001		6		1,805	5,556
Comprehensive income					
Net income	\$1,016				1,016



Foreign currency translation adjustment	51			
Minimum pension liability adjustment	(9)			
Unrealized gains on marketable securities, net	3			
	-----			
Total comprehensive income	\$1,061			
	=====			
Cash dividends declared			(246	
)				
Issuance of stock under stock plans			11	
Retirement of treasury stock			(727)	
Amortization of unearned stock compensation				
	-----	-----	-----	-----
Balances at November 30, 2002	6		1,089	6,326
Comprehensive income				
Net income	\$1,194			1,194
Foreign currency translation adjustment	162			
Unrealized losses on marketable securities, net	(1)			
Changes related to cash flow derivative hedges, net	(9)			
	-----			
Total comprehensive income	\$1,346			
	=====			
Cash dividends declared			(329	
)				
Acquisition of Carnival plc	\$346		6,010	
Issuance of stock under stock plans	3	64		
Amortization of unearned stock compensation				
	-----	-----	-----	-----
Balances at				
November 30, 2003	\$ 6	\$349	\$7,163	\$7,191
	=====	=====	=====	=====
	Unearned	Accumulated		Tot
al				
	stock	other		shar
e-				

	compen-	comprehensive	Treasury	hold
ers	sation	income (loss)	stock	equi
ty	-----	-----	-----	----
---				
Balances at November 30, 2000	\$(12)	\$(75)	\$(705)	\$5,8
71				
Comprehensive income				
Net income				9
26				
Foreign currency				
translation adjustment, net		46		
46				
Unrealized gains on				
marketable securities, net		6		
6				
Minimum pension liability				
adjustment		(6)		
(6)				
Changes related to cash flow				
derivative hedges, net		(4)		
(4)				
Transition adjustment for				
cash flow derivative hedges		(4)		
(4)				
Total comprehensive income				
Cash dividends declared				(2
46)				
Issuance of stock under				
stock plans	(5)		(22)	
5				
Amortization of unearned				
stock compensation	5			
5				
Other				
(8)				
	-----	-----	-----	----
--				
Balances at November 30, 2001	(12)	(37)	(727)	6,5
91				
Comprehensive income				
Net income				1,0
16				

	Foreign currency			
51	translation adjustment	51		
	Minimum pension liability			
(9)	adjustment	(9)		
	Unrealized gains on			
3	marketable securities, net	3		
	Total comprehensive income			
46)	Cash dividends declared			(2
	Issuance of stock under			
7	stock plans (4)			
	Retirement of treasury stock		727	
	Amortization of unearned stock			
5	compensation 5			
--		-----	-----	-----
18	Balances at November 30, 2002 (11)	8		7,4
	Comprehensive income			
94	Net income			1,1
	Foreign currency			
62	translation adjustment	162		1
	Unrealized losses on			
(1)	marketable securities, net	(1)		
	Changes related to cash flow			
(9)	derivative hedges, net	(9)		
	Total comprehensive income			
29)	Cash dividends declared			(3
98	Acquisition of Carnival plc		(1,058)	5,2
	Issuance of stock under			
53	stock plans (14)			
	Amortization of unearned			
7	stock compensation 7			

--	-----	-----	-----	-----
Balances at November 30, 2003	\$ (18)	\$ 160	\$ (1,058)	\$13,793
==	=====	=====	=====	=====

The accompanying notes are an integral part of these consolidated financial statements.

CARNIVAL CORPORATION & PLC  
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

NOTE 1 - General

Description of Business

On April 17, 2003, Carnival Corporation and Carnival plc (formerly known as P&O Princess Cruises plc) completed a dual listed company ("DLC") transaction (the "DLC transaction"), which implemented Carnival Corporation & plc's DLC structure. The DLC transaction combined the businesses of Carnival Corporation and Carnival plc through a number of contracts and amendments to Carnival Corporation's articles of incorporation and by-laws and to Carnival plc's memorandum of association and articles of association. The two companies have retained their separate legal identities, and each company's shares continue to be publicly traded on the New York Stock Exchange ("NYSE") for Carnival Corporation and the London Stock Exchange for Carnival plc. In addition, Carnival plc ADS's are traded on the NYSE. However, the two companies operate as if they were a single economic enterprise (see Note 3).

Carnival Corporation is a Panamanian corporation and Carnival plc is incorporated in England and Wales. Together with their consolidated subsidiaries they are referred to collectively in these consolidated financial statements and elsewhere in this 2003 Annual Report as "Carnival Corporation &

plc," "our," "us," and "we." Our consolidated financial statements include the

consolidated results of operations of Carnival Corporation for all periods presented and Carnival plc's consolidated results of operations since April 17, 2003.

We are a global cruise company and one of the largest vacation companies

in the world. As of February 15, 2004, a summary of the number of cruise ships

we operate, by brand, their passenger capacity and the primary areas in which

they are marketed is as follows:

Cruise Brands -----	Number of Cruise Ships -----	Passenger Capacity (a) -----	Primary Market -----
Carnival Cruise			
Lines ("CCL")	20	43,446	North America
Princess Cruises			
("Princess")	11	19,880	North America
Holland America Line	12	16,320	North America
Costa Cruises ("Costa")	10	15,570	Europe
P&O Cruises	4	7,724	United Kingdom
om			
AIDA	4	5,314	Germany
Cunard Line ("Cunard")	3	5,078	United Kingdom/
			North America
Ocean Village	1	1,602	United Kingdom
P&O Cruises Australia	1	1,200	Australia
Swan Hellenic	1	678	United Kingdom
Seabourn Cruise Line			
("Seabourn")	3	624	North America
Windstar Cruises ("Windstar")	3	604	North America
	--	-----	
	73	118,040	
	==	=====	

(a) In accordance with cruise industry practice, passenger capacity is calculated based on two passengers per cabin even though some cabins can accommodate three or more passengers.

Preparation of Financial Statements

The preparation of our consolidated financial statements in accordance with accounting principles generally accepted in the United States of America

requires us to make estimates and assumptions that affect the amounts reported

and disclosed in our financial statements. Actual results could differ from these estimates. All material intercompany accounts, transactions and unrealized profits and losses on transactions within our consolidated group and with affiliates are eliminated in consolidation.

Commencing in 2003, we changed the reporting format of our consolidated

statements of operations to present our significant revenue sources and their

directly related variable costs and expenses. In addition, we have separately

identified certain ship operating expenses, such as payroll and related

expenses and food costs. All prior periods were reclassified to conform to the

current year presentation.

#### NOTE 2 - Summary of Significant Accounting Policies

##### Basis of Presentation

We consolidate entities over which we have control, as typically evidenced by a direct ownership interest of greater than 50%. For affiliates

where significant influence over financial and operating policies exists, as

typically evidenced by a direct ownership interest from 20% to 50%, the investment is accounted for using the equity method. See Note 6.

##### Cash and Cash Equivalents and Short-Term Investments

Cash and cash equivalents include investments with original maturities of

three months or less, which are stated at cost. At November 30, 2003 and

2002, cash and cash equivalents included \$937 million and \$616 million of

investments, respectively, primarily comprised of strong investment grade asset-backed **debt obligations**, commercial paper and money market funds.

Short-term investments are comprised of marketable debt and equity

securities which are categorized as available for sale and, accordingly, are

stated at their fair values. Unrealized gains and losses are included as a component of accumulated other comprehensive income ("AOCI") within

shareholders' equity until realized. The specific identification method is used to determine realized gains or losses.

#### Inventories

Inventories consist primarily of provisions, gift shop and art merchandise held for resale, spare parts, supplies and fuel carried at the lower of cost or market. Cost is determined using the weighted average or first-in, first-out methods.

#### Property and Equipment

Property and equipment are stated at cost. Depreciation and amortization were computed using the straight-line method over our estimates of average useful lives and residual values, as a percentage of original cost, as follows:

	Residual	
	Values	Years
	-----	-----
Ships	15%	30
Buildings and improvements	0-10%	5-40
Transportation equipment and other	0-25%	2-20
Leasehold improvements, including port facilities		Shorter of lease term or related asset life

We review our long-lived assets for impairment whenever events or changes

in circumstances indicate that the carrying amount of these assets may not be

fully recoverable. The assessment of possible impairment is based on our

ability to recover the carrying value of our asset based on our estimate of

its undiscounted future cash flows. If these estimated undiscounted future cash flows are less than the carrying value of the asset, an impairment charge is recognized for the excess, if any, of the assets carrying value over its estimated fair value (see Note 5).

Dry-dock costs are included in prepaid expenses and are amortized to other ship operating expenses using the straight-line method generally over one year.

Ship improvement costs that we believe add value to our ships are capitalized to the ships, and depreciated over the improvements' estimated useful lives, while costs of repairs and maintenance are charged to expense as incurred. We capitalize interest on ships and other capital projects during their construction period. Upon the replacement or refurbishment of previously capitalized ship components, these assets' estimated cost and accumulated depreciation are written-off and any resulting loss is recognized in our results of operations. No such material losses were recognized in fiscal 2003, 2002 or 2001. See Note 4.

#### Goodwill

Statement of Financial Accounting Standards ("SFAS") No. 142, "Goodwill and Other Intangible Assets" requires companies to stop amortizing goodwill and requires an annual, or when events or circumstances dictate, a more frequent, impairment review of goodwill. Accordingly, upon adoption of SFAS No. 142 on December 1, 2001, we ceased amortizing our goodwill, all of which had been allocated to our cruise reporting units. In April 2003, we recorded \$2.25 billion of additional goodwill as a result of our acquisition of Carnival plc, which was also allocated to our cruise reporting units (see Note 3). There was no other change to our goodwill carrying amount since November 30, 2001, other than the changes resulting from using different foreign currency translation rates at each balance sheet date.

The SFAS No. 142 goodwill impairment review consists of a two-step process of first determining the fair value of the reporting unit and



comparing it to the carrying value of the net assets allocated to the reporting unit. Fair values of our reporting units were determined based on

our estimates of comparable market price or discounted future cash flows. If

this fair value exceeds the carrying value, which was the case for our reporting units, no further analysis or goodwill write-down is required. If

the fair value of the reporting unit is less than the carrying value of the net assets, the implied fair value of the reporting unit is allocated to all

the underlying assets and liabilities, including both recognized and unrecognized tangible and intangible assets, based on their fair value. If necessary, goodwill is then written-down to its implied fair value.

Prior to fiscal 2002, our goodwill was reviewed for impairment pursuant

to the same policy as our other long-lived assets as discussed above (see Note

5) and our goodwill was amortized over 40 years using the straight-line method.

If goodwill amortization, including goodwill expensed as part of our loss

from affiliated operations, had not been recorded for fiscal 2001 our adjusted

net income would have been \$952 million and our adjusted basic and diluted earnings per share would have been \$1.63 and \$1.62, respectively.

#### Trademarks

The cost of developing and maintaining our trademarks have been expensed

as incurred. However, pursuant to SFAS No. 141, "Business Combinations,"

commencing for acquisitions made after June 2001, we have allocated a portion

of the purchase price to the acquiree's identified trademarks. The trademarks

that Carnival Corporation recorded as part of the DLC transaction, which are

estimated to have an indefinite useful life and, therefore, are not amortizable, are reviewed for impairment annually, or more frequently when events or circumstances indicate that the trademark may be impaired. Our

trademarks are considered impaired if their carrying value exceeds their fair value. See Note 3.

#### Derivative Instruments and Hedging Activities

We utilize derivative and nonderivative financial instruments, such as forward foreign currency contracts, cross currency swaps and foreign currency

**debt obligations**  
to limit our exposure to fluctuations in foreign currency  
exchange rates and interest **rate**  
swaps to manage our interest **rate** exposure  
and to achieve a desired proportion of **variable** and fixed  
**rate** debt (see Note  
12).

All derivatives are recorded at fair value, and the changes in fair value

must be immediately included in earnings if the derivatives do not qualify as

effective hedges. If a derivative is a fair value hedge, then changes in the

fair value of the derivative are offset against the changes in the fair value

of the underlying hedged firm commitment. If a derivative is a cash flow hedge, then changes in the fair value of the derivative are recognized as a component of AOCI until the underlying hedged item is recognized in earnings.

If a derivative or a nonderivative financial instrument is designated as a hedge of a net investment in a foreign operation, then changes in the fair value of the financial instrument are recognized as a component of AOCI to immediately offset the change in the translated value of the net investment being hedged, until the investment is liquidated.

The ineffective portion of a hedge's change in fair value is immediately

recognized in earnings. We formally document all relationships between hedging

instruments and hedged items, as well as our risk management objectives and strategies for undertaking our hedge transactions.

We classify the fair value of our derivative contracts and the fair value

of our offsetting hedged firm commitments as either current or long-term assets and liabilities depending on whether the maturity date of the derivative contract is within or beyond one year from our balance sheet dates, respectively. The cash flows from derivatives treated as hedges are classified in our statements of cash flows in the same category as the item being hedged.

During fiscal 2003, 2002 and 2001, all net changes in the fair value of both our fair value hedges and the offsetting hedged firm commitments and our cash flow hedges were immaterial, as were any ineffective portions of these hedges. No fair value hedges or cash flow hedges were derecognized or discontinued in fiscal 2003, 2002 or 2001, and the amount of estimated cash flow hedges unrealized net losses which are expected to be reclassified to earnings in the next twelve months is not material. At November 30, 2003 and 2002, AOCI included \$17 million and \$8 million of unrealized net losses, respectively, from cash flow hedge derivatives, the majority of which were variable to fixed interest rate swap agreements.

Finally, if any shipyard with which we have contracts to build our ships is unable to perform, we would be required to perform under our foreign currency forward contracts related to these shipbuilding contracts. Accordingly, based upon the circumstances, we may have to discontinue the accounting for those forward contracts as hedges, if the shipyard cannot perform. However, we believe that the risk of shipyard nonperformance is remote.

#### Revenue and Expense Recognition

Guest cruise deposits represent unearned revenues and are initially recorded as customer deposit liabilities when received. Customer deposits are subsequently recognized as cruise revenues, together with revenues from onboard and other activities and all associated direct costs of a voyage, generally upon completion of voyages with durations of ten days or less and on

a pro rata basis for voyages in excess of ten days. Future travel discount vouchers issued to guests are recorded as a reduction of revenues when such vouchers are utilized. Revenues and expenses from our tour and travel services are recognized at the time the services are performed or expenses are incurred.

#### Advertising Costs

Substantially all of our advertising costs are charged to expense as incurred, except costs which result in tangible assets, such as brochures, which are recorded as prepaid expenses and charged to expense as consumed. Media production costs are also recorded as prepaid expenses and charged to expense upon the first airing of the advertisement. Advertising expenses totaled \$334 million, \$208 million and \$214 million in fiscal 2003, 2002 and 2001, respectively. At November 30, 2003 and 2002, the amount of advertising costs included in prepaid expenses was not material.

#### Foreign Currency Translations and Transactions

For our foreign subsidiaries and affiliates using the local currency as their functional currency, assets and liabilities are translated at exchange rates in effect at the balance sheet dates. Translation adjustments resulting from this process are reported as cumulative translation adjustments, which are a component of AOCI. Revenues and expenses of these foreign subsidiaries and affiliates are translated at weighted-average exchange rates for the period. Therefore, the U.S. dollar value of these items on the income statement fluctuates from period to period, depending on the value of the dollar against these functional currencies. Exchange gains and losses arising from transactions denominated in a currency other than the functional currency of the entity involved are immediately included in our earnings.

#### Earnings Per Share

Basic earnings per share is computed by dividing net income by the

weighted average number of shares of common stock and ordinary shares outstanding during each period. Diluted earnings per share is computed by dividing adjusted net income by the weighted-average number of shares of common stock and ordinary shares, common stock equivalents and other potentially dilutive securities outstanding during each period. See Note 15.

#### Stock-Based Compensation

Pursuant to SFAS No. 123, "Accounting for Stock-Based Compensation," as amended, we elected to use the intrinsic value method of accounting for our employee and director stock-based compensation awards. Accordingly, we have not recognized compensation expense for our noncompensatory employee and director stock option awards. Our adjusted net income and adjusted earnings per share, had we elected to adopt the fair value approach of SFAS No. 123, which charges earnings for the estimated fair value of stock options, would have been as follows (in millions, except per share amounts):

	Years ended November 30,		
	-----		
	2003	2002	20
01			
--	----	----	--
Net income, as reported	\$1,194	\$1,016	\$9
26			
Stock-based compensation			
expense included in			
net income, as reported	7	5	
5			
Total stock-based compensation			
expense determined under			
the fair value-based			
method for all awards	(36)	(30)	(
27)			
	-----	-----	--
--			
Adjusted net income for basic			
earnings per share	1,165	991	9

04	Interest on dilutive convertible notes	5		
		-----	-----	--
--	Adjusted net income for diluted			
	earnings per share	\$1,170	\$991	\$9
04		=====	=====	=====
==				
	Earnings per share			
	Basic			
	As reported	\$ 1.66	\$ 1.73	\$ 1.
58		=====	=====	=====
==				
	Adjusted	\$ 1.62	\$ 1.69	\$ 1.
54		=====	=====	=====
==				
	Diluted			
	As reported	\$ 1.66	\$ 1.73	\$ 1.
58		=====	=====	=====
==				
	Adjusted	\$ 1.62	\$ 1.69	\$ 1.
54		=====	=====	=====
==				
As recommended by SFAS No. 123, the fair value of options were estimated				
using the Black-Scholes option-pricing model. The Black-Scholes weighted-average assumptions were as follows:				
Fair value of options at the				
	dates of grant	\$13.33	\$12.16	\$12.
67		=====	=====	=====
==				
	Risk free interest rates	3.5%	4.3%	4
.5%		=====	=====	=====
==				

Dividend yields 16%	1.30%	1.23%	1.
==	=====	=====	=====
Expected volatility .0%	48.7%	48.0%	50
==	=====	=====	=====
Expected option life (in years) 6	6	6	
==	=====	=====	=====

The Black-Scholes option-pricing model was developed for use in estimating the fair value of traded options that have no vesting or trading restrictions and are fully transferable. In addition, option-pricing models require the input of subjective assumptions, including expected stock price volatility. Because our options have characteristics different from those of traded options, the existing models do not necessarily provide a reliable single measure of the fair value of our options.

#### Concentrations of Credit Risk

As part of our ongoing control procedures, we monitor concentrations of credit risk associated with financial and other institutions with which we conduct significant business. Credit risk, including counterparty nonperformance under derivative instruments, contingent obligations and new ship progress payment guarantees, is considered minimal, as we primarily conduct business with large, well-established financial institutions who have long-term credit ratings of A or above and we seek to diversify our counterparties. In addition, we have established guidelines regarding credit ratings and investment maturities that we follow to maintain safety and liquidity. We do not anticipate nonperformance by any of our significant counterparties.

We also monitor the creditworthiness of our customers to which we grant

credit terms in the normal course of our business. Concentrations of credit

risk associated with these receivables are considered minimal primarily due to

their short maturities and large number of accounts within our customer base.

We have experienced only minimal credit losses on our trade receivables. We

do not normally require collateral or other security to support normal credit

sales. However, we do normally require collateral and/or guarantees to

support notes receivable on significant asset sales and new ship progress payments to shipyards.

#### Reclassifications

Reclassifications have been made to prior year amounts to conform to the current year presentation.

#### NOTE 3 - DLC Transaction

The contracts governing the DLC structure provide that Carnival Corporation and Carnival plc each continue to have separate boards of directors, but the boards and senior executive management of both companies are identical. The amendments to the constituent documents of each of the companies also provide that, on most matters, the holders of the common equity

of both companies effectively vote as a single body. On specified matters where the interests of Carnival Corporation's shareholders may differ from the

interests of Carnival plc's shareholders (a "class rights action"), each shareholder body will vote separately as a class, such as transactions primarily designed to amend or unwind the DLC structure. Generally, no class

rights action will be implemented unless approved by both shareholder bodies.

Upon the closing of the DLC transaction, Carnival Corporation and Carnival plc also executed the Equalization and Governance Agreement, which provides for the equalization of dividends and liquidation distributions based

on an equalization ratio and contains provisions relating to the governance of



the DLC structure. Because the current equalization ratio is 1 to 1, one Carnival plc ordinary share is entitled to the same distributions, subject to the terms of the Equalization and Governance Agreement, as one share of Carnival Corporation common stock. In a liquidation of either company or both companies, if the hypothetical potential per share liquidation distributions to each company's shareholders are not equivalent, taking into account the relative value of the two companies' assets and the indebtedness of each company, to the extent that one company has greater net assets so that any liquidation distribution to its shareholders would not be equivalent on a per share basis, the company with the ability to make a higher net distribution is required to make a payment to the other company to equalize the possible net distribution to shareholders, subject to certain exceptions.

At the closing of the DLC transaction, Carnival Corporation and Carnival plc also executed deeds of guarantee. Under the terms of Carnival Corporation's deed of guarantee, Carnival Corporation has agreed to guarantee all indebtedness and certain other monetary obligations of Carnival plc that are incurred under agreements entered into on or after the closing date of the DLC transaction. The terms of Carnival plc's deed of guarantee are identical to those of Carnival Corporation's. In addition, Carnival Corporation and Carnival plc have each extended their respective deeds of guarantee to the other's pre-DLC indebtedness and other monetary obligations, thus effectively cross guaranteeing all Carnival Corporation and Carnival plc indebtedness and other monetary obligations. Each deed of guarantee provides that the creditors to whom the obligations are owed are intended third party beneficiaries of such deed of guarantee.

The deeds of guarantee are governed and construed in accordance with the laws of the Isle of Man. Subject to the terms of the guarantees, the holders of indebtedness and other obligations that are subject to the guarantees will have recourse to both Carnival plc and Carnival Corporation through a Carnival plc creditor must first make written demand on Carnival plc and a Carnival Corporation creditor on Carnival Corporation. Once the written demand is made by letter or other form of notice, the holders of indebtedness or other obligations may immediately commence an action against the relevant guarantor. There is no requirement under the deeds of guarantee to obtain a judgment, take other enforcement actions or wait any period of time prior to taking steps against the relevant guarantor. All actions or proceedings arising out of or in connection with the deeds of guarantee must be exclusively brought in courts in England.

Under the terms of the DLC transaction documents, Carnival Corporation and Carnival plc are permitted to transfer assets between the companies, make loans or investments in each other and otherwise enter into intercompany transactions. The companies have entered into some of these types of transactions and expect to enter into additional transactions in the future to take advantage of the flexibility provided by the DLC structure and to operate both companies as a single unified economic enterprise in the most effective manner. In addition, under the terms of the Equalization and Governance Agreement and the deeds of guarantee, the cash flow and assets of one company are required to be used to pay the obligations of the other company, if necessary.

Given the DLC structure as described above, we believe that providing separate financial statements for each of Carnival Corporation and Carnival plc would not present a true and fair view of the economic realities of the  
ir  
operations. Accordingly, separate financial statements for both Carnival Corporation and Carnival plc have not been presented.

Simultaneously with the completion of the DLC transaction, a partial share offer ("PSO") for 20% of Carnival plc's shares was made and accepted, which enabled 20% of Carnival plc shares to be exchanged for 41.7 million Carnival Corporation shares. The 41.7 million shares of Carnival plc held by  
Carnival Corporation as a result of the PSO, which cost \$1.05 billion, are being accounted for as treasury stock in the accompanying balance sheet. T  
he  
holders of Carnival Corporation shares, including the new shareholders who exchanged their Carnival plc shares for Carnival Corporation shares under t  
he  
PSO, now own an economic interest equal to approximately 79%, and holders o  
f  
Carnival plc shares now own an economic interest equal to approximately 21%  
,  
of Carnival Corporation & plc.

The management of Carnival Corporation and Carnival plc ultimately agr  
eed  
to enter into the DLC transaction because, among other things, the creation  
of  
Carnival Corporation & plc would result in a company with complementary  
well-  
known brands operating globally with enhanced growth opportunities, benefit  
s  
of sharing best practices and generating cost savings, increased financial  
flexibility and access to capital markets and a DLC structure, which allows  
for continued participation in an investment in the global cruise industry  
by  
Carnival plc's shareholders who wish to continue to hold shares in a UK-lis  
ted  
company.

Carnival plc was the third largest cruise company in the world and operated many well-known global brands with leading positions in the U.S., UK, Germany and Australia. The combination of Carnival Corporation with Carnival plc under the DLC structure has been accounted for under U.S. generally accepted accounting principles ("GAAP") as an acquisition of Carnival plc by Carnival Corporation pursuant to SFAS No. 141. The purchase price of \$25.31 per share was based upon the average of the quoted closing market price of Carnival Corporation's shares beginning two days before and ending two days after January 8, 2003, the date the Carnival plc board agreed to enter into the DLC transaction. The number of additional shares effectively issued in the combined entity for purchase accounting purposes was 209.6 million. In addition, Carnival Corporation incurred approximately \$60 million of direct acquisition costs, which have been included in the purchase price. The aggregate **purchase** price of \$5.36 billion, computed as described above, has been allocated to the **assets** and liabilities of Carnival plc as follows (in millions):

Ships	\$4,669
Ships under construction	233
Other tangible assets	868
Goodwill	2,248
Trademarks	1,291
Debt	(2,879)
Other liabilities	(1,072)
	-----
	\$5,358
	=====

During the fourth quarter of fiscal 2003 an appraisal firm who we engaged completed its valuation work in connection with establishing the estimated fair values of Carnival plc's cruise ships and non-amortizable and amortizable intangible assets as of the April 17, 2003 acquisition date. Accordingly, we reduced the carrying values of 15 Carnival plc ships, including three ships

which were under construction at the acquisition date, by \$689 million.

Trademarks are non-amortizable and represent the Princess, P&O Cruises, P&O

Cruises Australia, AIDA, and A'ROSA trademarks' estimated fair values. There

were no significant amortizable intangible assets identified in this appraisal

firm's valuation study.

The information presented below gives pro forma effect to the DLC transaction between Carnival Corporation and Carnival plc. Management has prepared the pro forma information based upon the companies' reported financial information and, accordingly, the pro forma information should be read in conjunction with the companies' financial statements.

As noted above, the DLC transaction has been accounted for as an acquisition of Carnival plc by Carnival Corporation, using the purchase method of accounting. Carnival plc's accounting policies have been conformed to Carnival Corporation's policies. Carnival plc's reporting period has been changed to Carnival Corporation's reporting period and the information presented below covers the same periods of time for both companies.

This pro forma information has been prepared as if the DLC transaction had occurred on December 1, 2002 and 2001, respectively, rather than April 17,

2003, and has not been adjusted to reflect any net transaction benefits. In

addition, this pro forma information does not purport to represent what the results of operations actually could have been if the DLC transaction had occurred on December 1, 2002 and 2001 or what those results will be for any future periods.

	Years ended November 30,	
	2003	2002
	----	----
(in millions, except earnings per share)		
Pro forma revenues	\$7,596	\$6,768
	=====	=====
Pro forma net income (a)-(d)	\$1,159	\$1,271
	=====	=====
Pro forma earnings per share		
Basic	\$1.46	\$1.60

	=====	=====
Diluted	\$1.45	\$1.59
	=====	=====
Pro forma weighted-average shares outstanding		
Basic	797	795
	=====	=====
Diluted	805	800
	=====	=====

(a) In accordance with SFAS No. 141, pro forma net income was reduced by \$5  
1

million in 2003 and \$104 million in 2002 for Carnival plc's nonrecurring  
g

costs related to its terminated Royal Caribbean transaction and the  
completion of the DLC transaction with Carnival Corporation, which  
were expensed by Carnival plc prior to April 17, 2003.

(b) As a result of the reduction in depreciation expenses due to the  
revaluation of Carnival plc's ships carrying values, pro forma net income  
me has been increased by \$16 million in 2003 and \$14 million in 2002.

(c) The 2002 pro forma net income included a \$51 million nonrecurring income  
e

tax benefit related to an Italian incentive tax law, which allowed Costa  
a

to receive an income tax benefit for contractual expenditures during 20  
02 incurred on the construction of a new ship.

(d) The 2003 pro forma net income included a \$13 million nonrecurring expense  
se

related to a DLC litigation matter and \$19 million of income related to  
the receipt of nonrecurring net insurance proceeds.

#### NOTE 4 - Property and Equipment

Property and equipment consisted of the following (in millions):

	November 30, -----	
	2003	2002
	----	----
Ships	\$18,134	\$10,666
Ships under construction	886	713
	-----	-----
	19,020	11,379
Land, buildings and improvements,		

and port facilities	504	315
Transportation equipment and other	549	409
	-----	-----
Total property and equipment	20,073	12,103
Less accumulated depreciation and amortization	(2,551)	(1,987)
	-----	-----
	\$17,522	\$10,116
	=====	=====

Capitalized interest, primarily on our ships under construction, amounted

to \$49 million, \$39 million and \$29 million in fiscal 2003, 2002 and 2001, respectively. Ships under construction include progress payments for the construction of the ship, as well as design and engineering fees, capitalized

interest, construction oversight costs and various owner supplied items. At

November 30, 2003, seven ships with an aggregate net book value of \$1.94 billion were pledged as collateral pursuant to mortgages related to \$1.04 billion of debt and a \$469 million contingent obligation (see Notes 7 and 9).

During fiscal 2003, \$1.05 billion of ship collateral, which was pledged against \$697 million of Carnival plc debt was released as collateral in exchange for revising the maturity dates of this debt and providing Carnival

Corporation guarantees (see Note 7).

Maintenance and repair expenses and dry-dock amortization were \$251 million, \$175 million and \$160 million in fiscal 2003, 2002 and 2001, respectively.

#### NOTE 5 - Impairment Charge

In fiscal 2002 we reduced the carrying value of one of our ships by recording an impairment charge of \$20 million. In fiscal 2001, we recorded an

impairment charge of \$140 million, which consisted principally of a \$71 million reduction in the carrying value of ships, a \$36 million write-off o

f

Seabourn goodwill, a \$15 million write-down of a Holland America Line note receivable, and a \$11 million loss on the sale of the Seabourn Goddess I and

II. The impaired ships' and note receivable fair values were based on third party appraisals, negotiations with unrelated third parties or other available

evidence, and the fair value of the impaired goodwill was based on our estimates of discounted future cash flows.

#### NOTE 6 - Investments In and Advances To Affiliates

On June 1, 2001, we sold our equity investment in Airtours plc, which resulted in a nonoperating net gain of \$101 million and net cash proceeds of

\$492 million. Cumulative foreign currency translation losses of \$59 million

were reclassified from AOCI and included in determining the 2001 net gain.

#### NOTE 7 - Debt

##### Short-Term Borrowings

Short-term borrowings consisted of unsecured notes, bearing interest at

libor plus 0.18% (1.3% weighted-average interest rate at November 30, 2003), repaid to a bank in December 2003.

##### Long-Term Debt

Long-term debt consisted of the following (in millions):

	November 30,	
	-----	
	2003 (a)	2002
(a)		
	----	----

##### Secured

##### Floating rate notes

, collateralized by two ships, bearing interest at libor plus 1.25% and libor plus 1.29% (2.24% and 2.33% at November 30, 2003), due through 2015 (b)

\$ 631

##### Euro floating rate note

, collateralized by one ship, bearing interest at euribor plus 0.5% (2.75% and 4.0 % at November 30, 2003 and 2002, respectively),



due through 2008	115	\$ 1
19		
Euro fixed rate note, collateralized by one ship, bearing interest at 4.74%, due through 2012 (b)	182	
Capitalized lease obligations, collateralized by two ships, implicit interest at 3.66%, due through 2005	115	
Other	3	
3		
	-----	---
--		
	1,046	1
22		
	-----	---
--		
Unsecured Fixed <b>rate notes</b> , bearing interest at 3.75% to 8.2%,  due through 2028 (b)	2,123	8
57		
Euro <b>floating rate notes</b> , bearing interest at euribor plus 0.35% to euribor plus 1.29% (2.4% to 3.9% and 3.8% to 4.0% at November 30,  2003 and 2002, respectively), due through 2008 (b)	1,129	5
70		
Euro revolving credit facilities, bearing interest at euribor plus 0.50% and euro libor plus 0.98% (2.6% to 3.2% and 3.6% at November 30, 2003 and  2002, respectively), due through 2006 (b)	300	1
10		
Sterling fixed <b>rate notes</b> , bearing interest at 6.4%, due in 2012 (b)	355	
Euro fixed <b>rate notes</b> , bearing interest at 5.57%,  due in 2006	353	2
97		
<b>Floating rate note</b> , bearing interest at libor plus 1.33% (2.45% at November 30, 2003), due through 2008 (b)	244	
Revolving credit facility, bearing interest at libor plus 0.17% (1.6% at November 30, 2002),  due through 2006		
50		
Other	44	
42		
Convertible notes, bearing interest at 2%, due in  2021, with first put option in 2005(b)	600	6
00		
Zero-coupon convertible notes, net of discount,		

with a face value of \$1.05 billion, due in 2021,		
with first put option in 2006(b)	541	5
21		
Convertible notes, bearing interest at 1.75%, net of discount, with a face value of \$889 million, due in 2033, with first put option in 2008(b)	575	
	-----	---
--		
	6,264	3,0
47		
	-----	---
--		
	7,310	3,1
69		
Less portion due within one year	(392)	(1
55)		
	-----	---
--		
	\$6,918	\$3,0
14		
	=====	===
==		

(a) All borrowings are in U.S. dollars unless otherwise noted. Euro and sterling denominated notes have been translated to U.S. dollars at the period-end exchange rates. At November 30, 2003, 67%, 28% and 5% of our debt was U.S. dollar, euro and sterling denominated, respectively, and at November 30, 2002, 65% was U.S. dollar and 35% was euro denominated.

(b) At November 30, 2003, all of Carnival plc's \$1.20 billion of debt was unconditionally guaranteed by P&O Princess Cruises International Limited ("POPCIL"), a 100% direct wholly-owned subsidiary of Carnival plc. On June 19, 2003, POPCIL, Carnival Corporation and Carnival plc executed a deed of guarantee under which POPCIL agreed to guarantee all indebtedness and related obligations of both Carnival Corporation and Carnival plc incurred under agreements entered into after April 17, 2003, the date the

DLC transaction was completed. Under this deed of guarantee, POPCIL also

agreed to guarantee all other Carnival Corporation and Carnival plc indebtedness and related obligations that Carnival Corporation and

Carnival plc agreed to guarantee under their deeds of guarantee. We anticipate that, in connection with corporate reorganization transactions

that we expect to complete shortly, the POPCIL guarantee will terminate in accordance with its terms.

In addition, in exchange for certain amendments to Carnival plc's consolidated indebtedness, which was outstanding prior to April 17, 2003,

Carnival Corporation has guaranteed substantially all of the Carnival plc

consolidated pre-acquisition debt outstanding at November 30, 2003.

Finally, Carnival plc has guaranteed all of the Carnival Corporation pre-acquisition debt outstanding at November 30, 2003.

Carnival Corporation's 2% convertible notes ("2% Notes"), its zero-coupon

convertible notes ("Zero-Coupon Notes") and its 1.75% convertible notes

("1.75% Notes") are convertible into 15.3 million shares, 17.4 million shares

and a maximum of 20.9 million shares, respectively, of Carnival Corporation common stock.

The 2% Notes are convertible at a conversion price of \$39.14 per share,

subject to adjustment, during any fiscal quarter for which the closing price

of the Carnival Corporation common stock is greater than \$43.05 per share for

a defined duration of time in the preceding fiscal quarter. The conditions for conversion of the 2% Notes have not been met since their issuance in 2001 through November 30, 2003.

The Zero-Coupon Notes have a 3.75% yield to maturity and are convertible during any fiscal quarter for which the closing price of the Carnival

Corporation common stock is greater than a specified trigger price for a defined duration of time in the preceding fiscal quarter. The trigger price commenced at a low of \$31.94 per share for the first quarter of fiscal 2002 and increases at an annual rate of 3.75% thereafter, until maturity. As of the end of the 2003 third and fourth quarters, the Zero-Coupon Notes became convertible into Carnival Corporation common stock for the 2003 fourth quarter and the 2004 first quarter as a result of Carnival Corporation's common stock achieving its target conversion trigger price per share of \$33.77 and \$34.09, respectively, for the requisite periods of time (see Note 15). No Zero-Coupon Notes were converted in fiscal 2003.

The 1.75% Notes, which were issued in April 2003, are convertible at a conversion price of \$53.11 per share, subject to adjustment, during any fiscal quarter for which the closing price of the Carnival Corporation common stock is greater than a specified trigger price for a defined duration of time in the preceding fiscal quarter. During the fiscal quarters ending from August 31, 2003 through April 29, 2008, the trigger price will be \$63.73 per share. Thereafter, this conversion trigger price increases each quarter based on an annual rate of 1.75%, until maturity. In addition, holders may also surrender the 1.75% Notes for conversion if they have been called for redemption or, for other specified occurrences, including the credit rating assigned to the 1.75% Notes being Baa3 or lower by Moody's Investors Service and BBB- or lower by Standard & Poor's Rating Services, as well as certain corporate transactions.

The conditions for conversion of the 1.75% Notes were not met during fiscal 2003. The 1.75% Notes interest is payable in cash semi-annually in arrears

,  
commencing October 29, 2003 through April 29, 2008. Effective April 30, 2008,

the 1.75% Notes no longer require a cash interest payment, but interest will accrete at a 1.75% yield to maturity.

Subsequent to April 29, 2008 and October 23, 2008, we may redeem all or a portion of the 1.75% Notes and Zero-Coupon Notes, respectively, at their accreted values and subsequent to April 14, 2008, we may redeem all or a portion of our 2% Notes at their face value plus any unpaid accrued interest.

In addition, on April 29, 2008, 2013, 2018, 2023 and 2028 the 1.75% Noteholders, on April 15 of 2005, 2008 and 2011 the 2% Noteholders and on October 24 of 2006, 2008, 2011 and 2016 the Zero-Coupon Noteholders may require us to repurchase all or a portion of the outstanding 1.75% Notes and Zero-Coupon Notes at their accreted values and the 2% Notes at their face value plus any unpaid accrued interest.

Upon conversion, redemption or repurchase of the 1.75% Notes, the 2% Notes and the Zero-Coupon Notes we may choose to deliver Carnival Corporation common stock, cash or a combination of cash and common stock with a total value equal to the value of the consideration otherwise deliverable. If the 1.75% Notes, 2% Notes and Zero-Coupon Notes were to be put back to us, we would expect to settle them for cash and, accordingly, they are not included in our diluted earnings per share common stock calculations, unless they become convertible and are dilutive to our earnings per share computation. However, no assurance can be given that we will have sufficient liquidity to make such cash payments. See Note 15.

Costa has a 257.5 million euro (\$303 million U.S. dollars at the November 30, 2003 exchange rate) unsecured euro revolving credit facility, which

expires in May 2006, of which \$219 million was available at November 30, 2003.

In addition, POPCIL has \$710 million of unsecured revolving multi-currency credit facilities, which expire in September 2005, of which \$494 million was available at November 30, 2003.

Carnival Corporation's \$1.4 billion unsecured multi-currency revolving credit facility matures in June 2006. This facility currently bears interest at *libor/eurolibor* plus 20 basis points ("BPS"), which interest rate spread over the base rate will vary based on changes to Carnival Corporation's senior unsecured debt ratings, and provides for an undrawn facility fee of ten BPS.

Carnival Corporation's commercial paper program is supported by this revolving credit facility and, accordingly, any amounts outstanding under its commercial paper program, none at November 30, 2003 and 2002, reduce the aggregate amount available under this facility. At November 30, 2003, the entire facility was available.

This \$1.4 billion facility and other of our loan and derivative agreements contain covenants that require us, among other things, to maintain a minimum debt service coverage and limits our debt to capital ratios and debt to equity ratio, and the amounts of our secured assets and secured indebtedness, and shareholders' equity. In addition, if our business suffers a material adverse change or if other events of default under our loan agreements are triggered, then pursuant to cross default acceleration clauses, substantially all of our outstanding debt and derivative contract payables could become due and the underlying facilities could be terminated. At November 30, 2003, we were in compliance with all of our debt covenants.

In November 2003, we issued \$550 million of unsecured 3.75% Notes due in

November 2007, the proceeds of which we used to repay some of the amounts outstanding under the POPCIL \$710 million credit facilities and for working capital purposes.

At November 30, 2003, the scheduled annual maturities of our long-term debt was as follows (in millions):

Fiscal	
-----	
2004	\$ 392
2005	1,263 (a)
2006	1,587 (a)
2007	999
2008	1,492 (a)
Thereafter	1,577
	-----
	\$7,310
	=====

(a) Includes \$600 million of Carnival Corporation's 2% Notes in 2005, \$541 million of its Zero-Coupon Notes in 2006, and \$575 million of its 1.75% Notes

in 2008, based in each case on the date of the noteholders' first put option.

Debt issuance costs are generally amortized to interest expense using the

straight-line method, which approximates the effective interest method, over

the term of the notes or the noteholders first put option date, whichever is

earlier. In addition, all loan issue discounts are amortized to interest expense using the effective interest rate method over the term of the notes.

#### NOTE 8 - Commitments Ship Commitments

A description of our ships under contract for construction at November 30, 2003 was as follows (in millions, except passenger capacity):

Brand and Ship	Expected		Estimated	
	Service	Shipyard	Passenger	Total
Date (a)			Capacity	Cost (b)

-----	-----	-----	-----	-----
-				
Princess				
Diamond Princess	3/04	Mitsubishi	2,674	\$ 475
Caribbean Princess	4/04	Fincantieri (c)	3,114	500
Sapphire Princess	6/04	Mitsubishi	2,674	475
Newbuild	6/06	Fincantieri	3,114	500
			-----	-----
Total Princess			11,576	1,950
			-----	-----
CCL				
Carnival Miracle	2/04	Masa-Yards (c) (d)	2,124	375
Carnival Valor	12/04	Fincantieri (c)	2,974	510
Carnival Liberty	8/05	Fincantieri	2,974	460
			-----	-----
Total CCL			8,072	1,345
			-----	-----
Holland America Line				
Westerdam	4/04	Fincantieri (c)	1,848	410
Noordam	2/06	Fincantieri (c)	1,848	410
			-----	-----
Total Holland America Line			3,696	820
			-----	-----
Cunard				
Queen Mary 2	1/04	Chantiers de		
		L'Atlantique (c) (d)	2,620	800
Queen Victoria	4/05	Fincantieri (c)	1,968	410
			-----	-----
Total Cunard			4,588	1,210
			-----	-----
Costa				
Costa Magica	11/04	Fincantieri (e)	2,702	545



	-----	-----
Total	30,634	\$5,870
	=====	=====

- (a) The expected service date is the month in which the ship is currently expected to begin its first revenue generating cruise.
- (b) Estimated total cost of the completed ship includes the contract price with the shipyard, design and engineering fees, capitalized interest, construction oversight costs and various owner supplied items.
- (c) These construction contracts are denominated in euros and have been fixed into U.S. dollars through the utilization of forward foreign currency contracts.
- (d) The Carnival Miracle and the Queen Mary 2 were delivered in February 2004 and December 2003, respectively.
- (e) This construction contract is denominated in euros, which is Costa's functional currency and, therefore, we have not entered into a forward foreign currency contract to hedge this commitment. The estimated total cost has been translated into U.S. dollars using the November 30, 2003 exchange rate.

In addition to these ship construction contracts, in January 2004, Costa entered into a letter of intent for a 3,004-passenger ship with Fincantieri for a Summer 2006 delivery date at an estimated total cost of 450 million euros.

In connection with our cruise ships under contract for construction, we have paid \$876 million through November 30, 2003 and anticipate paying the remaining estimated total costs as follows: \$2.98 billion in 2004, \$1.24 billion in 2005 and \$775 million in 2006.

#### Operating Leases

Rent expense under our operating leases, primarily for office and warehouse space, was \$48 million, \$15 million and \$13 million in fiscal 2003, 2002 and 2001, respectively. At November 30, 2003, minimum annual rentals for

our operating leases, with initial or remaining terms in excess of one year ,

were as follows (in millions): \$57, \$49, \$36, \$26, \$23 and \$85 in fiscal 2004

through 2008 and thereafter, respectively.

#### Port Facilities and Other

At November 30, 2003, we had commitments through 2052, with initial or remaining terms in excess of one year, to pay minimum amounts for our annual

usage of port facilities and other contractual commitments as follows (in millions): \$57, \$32, \$33, \$35, \$35 and \$200 in fiscal 2004 through 2008 and thereafter, respectively.

#### NOTE 9 - Contingencies

##### Litigation

In 2002, two actions (collectively, the "Facsimile Complaints") were filed against Carnival Corporation on behalf of purported classes of persons

who received unsolicited advertisements via facsimile, alleging that Carnival

Corporation and other defendants distributed unsolicited advertisements via facsimile in contravention of the U.S. Telephone Consumer Protection Act. The

plaintiffs seek to enjoin the sending of unsolicited facsimile advertisements

and statutory damages. The advertisements referred to in the Facsimile

Complaints were not sent by Carnival Corporation, but rather were distributed

by a professional faxing company at the behest of travel agencies that referenced a CCL product. We do not advertise directly to the traveling public through the use of facsimile transmission. The ultimate outcomes of the Facsimile Complaints cannot be determined at this time. We believe that

we have meritorious defenses to these claims and, accordingly, we intend to vigorously defend against these actions.

In February 2001, Holland America Line-USA, Inc. ("HAL-USA"), a wholly

-

owned subsidiary, received a grand jury subpoena requesting that it produce documents and records relating to the air emissions from Holland America Line ships in Alaska. HAL-USA responded to the subpoena. The ultimate outcome of this matter cannot be determined at this time.

On August 17, 2002, an incident occurred in Juneau, Alaska onboard Holland America Line's Ryndam involving a wastewater discharge from the ship. As a result of this incident, various Ryndam ship officers and crew have received grand jury subpoenas from the Office of the U.S. Attorney in Anchorage, Alaska requesting that they appear before a grand jury. One subpoena also requested the production of Holland America Line documents, which Holland America Line has produced. Holland America Line is also complying with a subpoena for additional documents. If the investigation results in charges being filed, a judgment could include, among other forms of relief, fines and debarment from federal contracting, which would prohibit operations in Glacier Bay National Park and Preserve during the period of debarment. The State of Alaska is separately investigating this incident. The ultimate outcomes of these matters cannot be determined at this time. However, if Holland America Line were to lose its Glacier Bay permits we would not expect the impact on our financial statements to be material to us since we believe there are additional attractive alternative destinations in Alaska that can be substituted for Glacier Bay.

Costa has instituted arbitration proceedings in Italy to confirm the validity of its decision not to deliver its ship, the Costa Classica, to the shipyard of Cammell Laird Holdings PLC ("Cammell Laird") under a 79 million euro denominated contract for the conversion and lengthening of the ship. Costa has also given notice of termination of the contract. It is now expected that the arbitration tribunal's decision will be made in late-2004 at the earliest. In the event that an award is given in favor of Cammell Laird,

the amount of damages, which Costa would have to pay, if any, is not currently

determinable. The ultimate outcome of this matter cannot be determined at this time.

On April 23, 2003, Festival Crociere S.p.A. commenced an action against

the European Commission (the "Commission") in the Court of First Instance of

the European Communities in Luxembourg seeking to annul the Commission's antitrust approval of the DLC transaction (the "Festival Action"). We have been granted leave to intervene in the Festival Action and intend to contest

such action vigorously. A successful third party challenge of an unconditional Commission clearance decision would be unprecedented, and based

on a review of the law and the factual circumstances of the DLC transaction,

as well as the Commission's approval decision in relation to the DLC transaction, we believe that the Festival Action will not have a material adverse effect on the companies or the DLC transaction. However, the ultimate

outcome of this matter cannot be determined at this time.

In the normal course of our business, various other claims and lawsuits

have been filed or are pending against us. Most of these claims and lawsuits

are covered by insurance and, accordingly, the maximum amount of our liability

is typically limited to our self-insurance retention levels. However, the ultimate outcome of these claims and lawsuits which are not covered by insurance cannot be determined at this time.

#### Contingent Obligations

At November 30, 2003, we had contingent obligations totaling \$1.08 billion to participants in lease out and lease back type transactions for three of our ships. At the inception of the leases, the entire amount of the

contingent obligations was paid by us to major financial institutions to

enable them to directly pay these obligations. Accordingly, these obligations

were considered extinguished, and neither funds nor the contingent obligations

have been included on our balance sheets. We would only be required to make

any payments under these contingent obligations in the remote event of nonperformance by these financial institutions, all of which have long-term credit ratings of AAA or AA. In addition, we obtained a direct guarantee from

another AAA rated financial institution for \$298 million of the above noted contingent obligations, thereby further reducing the already remote exposure

to this portion of the contingent obligations. If the major financial institutions' credit ratings fall below AA-, we would be required to move a majority of the funds from these financial institutions to other highly-rated

financial institutions. If Carnival Corporation's credit rating falls below

BBB, we would be required to provide a standby letter of credit for \$90

million, or alternatively provide mortgages in the aggregate amount of \$90 million on two of Carnival Corporation's ships.

In the unlikely event that we were to terminate the three lease agreements early or default on our obligations, we would, as of November 30,

2003 have to pay a total of \$168 million in stipulated damages. As of November 30, 2003, \$177 million of standby letters of credit have been issued

by a major financial institution in order to provide further security for the

payment of these contingent stipulated damages. In the event we were to

default under our \$1.4 billion revolving credit facility, we would be required

to post cash collateral to support the stipulated damages standby letters of

credit. Between 2017 and 2022, we have the right to exercise options that

would terminate these transactions at no cost to us. As a result of these

three transactions, we have \$40 million and \$43 million of deferred income

recorded on our balance sheets as of November 30, 2003 and 2002, respectively,

which is being amortized to nonoperating income through 2022.

#### Other Contingent Obligations

Some of the debt agreements that we enter into include indemnification provisions that obligate us to make payments to the counterparty if certain events occur. These contingencies generally relate to changes in taxes, changes in laws that increase lender capital costs and other similar costs. The indemnification clauses are often standard contractual terms and were entered into in the normal course of business. There are no stated or notional amounts included in the indemnification clauses and we are not able to estimate the maximum potential amount of future payments, if any, under these indemnification clauses. We have not been required to make any payments under such indemnification clauses in the past and, under current circumstances, we do not believe a request for indemnification is probable.

#### NOTE 10 - Income and Other Taxes

We believe that substantially all of our income, with the exception of our U.S. source income from the transportation, hotel and tour businesses of Holland America Tours and Princess Tours and the items listed in the regulations under Section 883 that the Internal Revenue Service does not consider to be incidental to ship operations discussed in the following paragraph, is exempt from U.S. federal income taxes. If we were found not to qualify for exemption pursuant to applicable income tax treaties or under the Internal Revenue Code or if the income tax treaties or Internal Revenue Code were to be changed in a manner adverse to us, a portion of our income would become subject to taxation by the U.S. at higher than normal corporate tax rates.

On August 26, 2003, final regulations under Section 883 of the Internal Revenue Code were published in the Federal Register. Section 883 is the primary provision upon which we rely to exempt certain of our international

ship operation earnings from U.S. income taxes. The final regulations list elements of income that are not considered to be incidental to ship operations and, to the extent earned within the U.S., are subject to U.S. income tax. Among the items identified in the final regulations are income from the sale of air and other transportation, shore excursions and pre-and post cruise land packages. These rules will first be effective for us in fiscal 2004.

AIDA, A'ROSA, Ocean Village, P&O Cruises, P&O Cruises Australia and

Swan Hellenic are all strategically and commercially managed in the UK and have elected to enter the UK tonnage tax regime. Accordingly, these operations pay UK corporation tax on shipping profits calculated by reference to the net tonnage of qualifying vessels. Income not considered to be shipping profits is taxable under the normal UK tax rules. We believe that substantially all of the income attributable to these brands constitutes shipping profits and, accordingly, income tax expense from these operations has been and is expected to be minimal.

Some of our subsidiaries, including Costa, Holland America Tours, Princess Tours and other of our non-shipping activities, are subject to foreign and/or U.S. federal and state income taxes. In fiscal 2003, we recognized a net \$29 million income tax expense, primarily related to these operations. In 2002, we recognized a net \$57 million income tax benefit primarily due to an Italian investment incentive law, which allowed Costa to receive a \$51 million income tax benefit based on contractual expenditures during 2002 on the construction of a new ship. At November 30, 2003, Costa had a remaining net deferred tax asset of approximately \$61 million relating primarily to the tax benefit of the net operating loss carryforwards arising from this incentive law, which expire in 2007. In fiscal 2001, we recognized a \$9 million income tax benefit from Costa primarily due to changes in Italian tax law.

We do not expect to incur income taxes on future distributions of

undistributed earnings of foreign subsidiaries and, accordingly, no deferred

income taxes have been provided for the distribution of these earnings.

In addition to or in place of income taxes, virtually all jurisdictions

where our ships call, impose taxes based on passenger counts, ship tonnage or

some other measure. These taxes, other than those directly charged to and/or

collected from passengers by us, are recorded as operating expenses in the accompanying statements of operations.

#### NOTE 11 - Shareholders' Equity

Carnival Corporation's articles of incorporation authorize its Board of

Directors, at its discretion, to issue up to 40 million shares of its preferred stock and Carnival plc has 100,000 authorized preference shares. At

November 30, 2003 and 2002, no Carnival Corporation preferred stock had been

issued and only a nominal amount of Carnival plc preferred shares had been issued.

At November 30, 2003, there were 91.7 million shares of Carnival Corporation common stock reserved for issuance pursuant to its convertible notes and its employee benefit and dividend reinvestment plans. In addition,

Carnival plc shareholders have authorized 4.8 million ordinary shares for future issuance under its employee benefit plans.

At November 30, 2003 and 2002, AOCI included cumulative foreign currency

translation adjustments which increased shareholders' equity by \$191 million

and \$29 million, respectively.

#### NOTE 12 - Financial Instruments

We estimated the fair value of our financial instruments through the use

of public market prices, quotes from financial institutions and other available information. Considerable judgment is required in interpreting data

to develop estimates of fair value and, accordingly, amounts are not



necessarily indicative of the amounts that we could realize in a current market exchange. Our financial instruments are not held for trading or other speculative purposes.

#### Cash and Cash Equivalents

The carrying amounts of our cash and cash equivalents approximate their fair values due to their short maturities.

#### Other Assets

At November 30, 2003 and 2002, long-term other assets included marketable securities held in rabbi trusts for certain of our nonqualified benefit plans and notes and other receivables. These assets had carrying and fair values of \$225 million at November 30, 2003 and \$173 million at November 30, 2002. Fair values were based on public market prices, estimated discounted future cash flows or estimated fair value of collateral.

#### Debt

The fair values of our non-convertible debt and convertible notes were \$5.83 billion and \$1.92 billion, respectively, at November 30, 2003 and \$2.04 billion and \$1.28 billion at November 30, 2002. These fair values were greater than the related carrying values by \$140 million and \$205 million, respectively, at November 30, 2003 and \$4 million and \$162 million at November 30, 2002. The net difference between the fair value of our debt and its carrying value was due primarily to our issuance of **debt obligations** at fixed interest rates that are above market interest rates in existence at the measurement dates, as well as the impact of changes in the Carnival Corporation common stock value on our convertible notes on those dates. The fair values of our unsecured fixed rate public notes, convertible notes, sterling bonds and unsecured 5.57% euro notes were based on their public market prices. The f

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values of our other debt were estimated based on appropriate market interest rates being applied to this debt.

#### Foreign Currency Contracts

We have forward foreign currency contracts, designated as foreign currency fair value hedges, for seven of our euro denominated shipbuilding contracts (see Note 8). At November 30, 2003 and 2002, the fair value of these forward contracts was an unrealized gain of \$363 million and an unrealized loss of \$178 million, respectively. These forward contracts mature through 2006. The fair values of our forward contracts were estimated based on prices quoted by financial institutions for these instruments.

We have cross currency swaps totaling \$644 million that are designated as hedges of our net investments in foreign subsidiaries, which have euro and sterling denominated functional currencies. These cross currency swaps were entered into to effectively convert U.S. dollar denominated debt into euro or sterling debt, which acts as a hedge of our net investments in cruise lines whose functional currencies are the euro and sterling. At November 30, 2003, the fair value of these cross currency swaps was an unrealized loss of \$49 million, of which \$39 million is included in the cumulative translation adjustment component of AOCI. These currency swaps mature through 2007. We also have \$171 million of cross currency swaps, which effectively converts euro denominated debt into sterling debt, which is the functional currency of our subsidiary which was the borrower. At November 30, 2003, the fair value of these cross euro/sterling currency swaps was a loss of \$21 million. These currency swaps mature through 2012. The fair value of our cross currency swaps were estimated based on prices quoted by financial institutions for these instruments. Finally, we have designated \$355 million of outstanding sterling debt, which is a nonderivative and matures in 2012, as a hedge of our

net investments in foreign operations and, accordingly, have included \$24 million of foreign currency transaction losses in the cumulative translation adjustment component of AOCI at November 30, 2003.

#### Interest Rate Swaps

We have interest rate swap agreements designated as fair value hedges whereby we receive fixed interest rate payments in exchange for making variable interest rate payments. At November 30, 2003 and 2002, these interest rate swap agreements effectively changed \$1.19 billion and \$225 million of fixed rate debt to Libor-based floating rate debt.

In addition, we also have interest rate swap agreements designated as cash flow hedges whereby we receive variable interest rate payments in exchange for making fixed interest rate payments. At November 30, 2003 and 2002, these interest rate swap agreements effectively changed \$760 million and \$468 million, respectively, of euribor floating rate debt to fixed rate debt.

These interest rate swap agreements mature through 2012. At November 30, 2003 and 2002, the fair value of our interest rate swaps was a loss of \$6 million and \$0.1 million, respectively. The fair values of our interest rate swap agreements were estimated based on prices quoted by financial institutions for these instruments.

#### NOTE 13 - Segment Information

Our cruise segment included thirteen cruise brands since April 17, 2003, and six Carnival Corporation cruise brands from December 1, 2001 to April 16, 2003, which have been aggregated as a single reportable segment based on the similarity of their economic and other characteristics.

Our other segment represents the transportation, hotel and tour operations of Holland America Tours and Princess Tours and the business to business travel agency operations of P&O Travel Ltd., the latter two since completion of the DLC transaction on April 17, 2003. The significant accounting policies of our segments are the same as those described in Note

- "Summary of Significant Accounting Policies." Information for our cruise and

other segments as of and for the year ended November 30, was as follows (in millions):

	Operating		Selling and adminis-	Deprecia-	income	Operating	Capital
	Revenues	expenses	trative	and amortiza-	(loss)	expend-	Total
	(a)	(b)		tion		itures	assets
	-----	-----	-----	-----	-----	-----	-----
2003							
Cruise	\$6,459	\$3,624	\$896	\$568	\$1,371	\$2,454	\$24,090
Other	345	280	36	17	12	62	401
(c)							
Intersegment elimination	(86)	(86)					
	-----	-----	-----	-----	-----	-----	-----
	\$6,718	\$3,818	\$932	\$585	\$1,383	\$2,516	\$24,491
	=====	=====	=====	=====	=====	=====	=====
2002							
Cruise (d)	\$4,244	\$2,222	\$577	\$371	\$1,055 (c)	\$1,949	\$12,120
Other	176	145	32	11	(13)	37	215
(c)							
Intersegment elimination	(37)	(37)					
	-----	-----	-----	-----	-----	-----	-----
	\$4,383	\$2,330	\$609	\$382	\$1,042	\$1,986	\$12,335
	=====	=====	=====	=====	=====	=====	=====
2001							
Cruise (d)	\$4,371	\$2,347	\$584	\$361	\$ 946 (e)	\$ 802	\$11,375
Other	229	186	35	11	(10) (e)	25	189
(c)							
Affiliated operations (f)						(44)	
Intersegment elimination	(51)	(51)					
	-----	-----	-----	-----	-----	-----	-----
	\$4,549	\$2,482	\$619	\$372	\$ 892	\$ 827	\$11,564
	=====	=====	=====	=====	=====	=====	=====

- (a) Other revenues included revenues for the cruise portion of a tour, when a cruise is sold along with a land tour package by Holland America Tours and Princess Tours, and shore excursion and port hospitality services provided to cruise passengers by these tour companies. These intersegment revenues are eliminated from other revenues in the line "Intersegment elimination."
- (b) Revenue amounts in 2002 and 2001 have been reclassified to conform to the 2003 presentation.
- (c) Other assets primarily included hotels and lodges in Alaska and the Canadian Yukon, luxury dayboats offering tours to the glaciers of Alaska and the Yukon River, motor coaches used for sightseeing and charters in the States of Washington and Alaska, British Columbia, Canada and the Canadian Yukon and private, domed rail cars, which run on the Alaska Railroad between Anchorage and Fairbanks.
- (d) In 2003, we commenced allocating all corporate expenses to our cruise segment. Accordingly, the 2002 and 2001 presentations have been restated to allocate the previously unallocated 2002 and 2001 corporate expenses and assets to our cruise segment.
- (e) Cruise operating income included impairment charges of \$20 million in 2002 and \$134 million in 2001 and other operating loss included an impairment charge of \$6 million in 2001.
- (f) On June 1, 2001, we sold our investment in Airtours. Accordingly, we did not record any equity in the earnings or losses of Airtours after May 31, 2001.

Foreign revenues for our cruise brands represent sales generated from outside the U.S. primarily by foreign tour operators and foreign travel agencies. Substantially all of these foreign revenues are from the UK, Ita

ly,

Germany, Canada, France, Australia, Spain, Switzerland and Brazil.

Substantially all of our long-lived assets are located outside of the U.S. and

consist principally of our goodwill, trademarks, ships and ships under construction.

Revenue information by geographic area for fiscal 2003, 2002 and 2001 was as follows (in millions):

	2003	2002	2001
	----	----	----
U.S.	\$4,513	\$3,304	\$3,500
Foreign	2,205	1,079	1,049
	-----	-----	-----
	\$6,718	\$4,383	\$4,549
	=====	=====	=====

#### NOTE 14 - Benefit Plans

##### Stock Option Plans

We have stock option plans primarily for supervisory and management level

employees and members of our Board of Directors. The Carnival Corporation and

Carnival plc plans are administered by a committee of three of our directors

(the "Committee") which determines who is eligible to participate, the number

of shares for which options are to be granted and the amounts that may be

exercised within a specified term. The Carnival Corporation and Carnival plc

option exercise price is generally set by the Committee at 100% of the fair market value of the common stock/ordinary shares on the date the option is granted. Substantially all Carnival Corporation options granted during fiscal

2003, 2002 and 2001 and Carnival plc options granted in 2003 were granted at

an exercise price per share equal to the fair market value of the Carnival Corporation common stock and Carnival plc ordinary shares, respectively, on the date of grant. Carnival Corporation employee options generally vest evenly over five years and have a ten year term. Carnival plc employee

options generally vest at the end of three years and have a ten year term.

Carnival Corporation director options granted subsequent to fiscal 2000 vest

evenly over five years and have a ten year term. At November 30, 2003,

Carnival Corporation had 34.9 million shares and Carnival plc had 4.8 million

shares, which were available for future grants under the option plans.

A combined summary of the activity and status of the Carnival Corporation

and Carnival plc stock option plans was as follows:

		Weighted Average Exercise Price			Number of Options		
		Per Share			Years Ended November 30,		
		-----			-----		
		2003	2002	2001	2003	2002	2001
1		----	----	----	----	----	----
-							
	Outstanding options-						
	beginning of						
year		\$29.26	\$28.95	\$26.80	11,828,958	12,774,293	8,840,793
	Carnival plc						
	outstanding						
	options						
	at April 17,						
	2003 (a)	\$19.64			5,523,013		
Options granted		\$30.88	\$26.54	\$26.44	5,464,109	33,000	6,580,250
	Options						
exercised (b)		\$17.35	\$14.35	\$11.70	(2,919,554)	(404,615)	(2,218,075)
Options canceled		\$28.64	\$32.80	\$35.15	(598,547)	(573,720)	(428,675)
					-----	-----	-----
---							
	Outstanding options-						
end of year (e)		\$28.79	\$29.26	\$28.95	19,297,979 (c)	11,828,958	12,774,293
					=====	=====	=====
===							
	Options exercisable-						
end of year		\$27.68	\$28.71	\$25.96	7,848,335 (d)	4,775,894	2,972,498

===

=====

- (a) All Carnival plc unvested options outstanding on the date the DLC transaction was completed vested fully on such date, except for 1.3 million options, which were granted on April 15, 2003.
- (b) Included 1.8 million Carnival plc options in 2003, of which 1.0 million had a sterling denominated exercise price.
- (c) Included 3.6 million of Carnival plc options at a weighted average exercise price of \$20.89 per share, based on the November 30, 2003 U.S. dollar to sterling exchange rate.
- (d) Included 2.2 million of Carnival plc options at a weighted average exercise price of \$18.06 per share.
- (e) On December 1, 2003, as a result of the Princess cruise operations being transferred to the Carnival Corporation side of the DLC structure, options to purchase 567,000 shares of Carnival plc vested immediately, and the termination date of 1.5 million Carnival plc exercisable options were shortened to the earlier of 12 months after the December 1, 2003 reorganization date or 42 months after the date of grant. All such changes have been made pursuant to the original terms of the Carnival plc plan.

Combined information with respect to outstanding and exercisable Carnival Corporation and Carnival plc stock options at November 30, 2003 was as follows:

	Options Outstanding			Options Exercisable		
	-----			-----		
	Weighted	Weighted		Weighted	Weighted	
	Average	Average		Average	Average	
Exercise	Remaining	Exercise		Exercise	Exercise	
Price Range	Shares	Life (Years)	Price	Shares	Price	
	-----			-----		



7	\$ 1.94-\$ 2.25	30,980	(a)	\$ 2.07	30,980	\$ 2.0
4	\$10.59-\$15.00	735,102	5.4	\$13.54	735,102	\$13.5
0	\$16.28-\$22.57	4,477,849	7.1	\$20.71	2,617,539	\$19.7
0	\$23.04-\$27.88	5,714,089	8.4	\$26.44	1,319,694	\$25.0
7	\$28.21-\$34.91	5,518,009	8.4	\$32.12	1,172,570	\$30.2
6	\$36.72-\$41.34	102,000	4.8	\$38.09	97,600	\$38.0
0	\$43.56-\$48.56	2,719,950	5.7	\$44.36	1,874,850	\$44.5
-		-----	---	-----	-----	-----
8	Total	19,297,979	7.6	\$28.79	7,848,335	\$27.6
=		=====	===	=====	=====	=====

(a) These stock options do not have an expiration date.

#### Carnival Corporation Restricted Stock

Carnival Corporation has issued restricted stock to a few officers. These shares have the same rights as Carnival Corporation common stock, except for transfer restrictions and forfeiture provisions. During fiscal 2003, 2002 and 2001, 455,000 shares, 150,000 shares and 150,000 shares, respectively, of Carnival Corporation common stock were issued, which were valued at \$14 million, \$4 million and \$5 million, respectively. Unearned stock compensation was recorded within shareholders' equity at the date of award based on the quoted market price of the Carnival Corporation common stock on the date of grant and is amortized to expense using the straight-line method from the grant date through the earlier of the vesting date or the officers estimated

retirement date. These shares either have three or five-year cliff vesting or

vest evenly over five years after the grant date. As of November 30, 2003 and

2002 there were 1,055,000 shares and 750,000 shares, respectively, issued under the plan which remained to be vested.

#### Defined Benefit Pension Plans

We have several defined benefit pension plans, which cover some of our shipboard and shoreside employees. The U.S. and UK shoreside employee plans

are closed to new membership. The plans are funded, at a minimum, in accordance with U.S. or UK regulatory requirements, with the remaining plans

being primarily unfunded. In determining our plans' benefit obligations at November 30, 2003, we used assumed weighted-average discount rates of 6.0% and

5.3% for our U.S. and foreign plans, respectively. The net liabilities related to the obligations under these single employer defined benefit pension plans are not material.

A minimum pension liability adjustment is required when the actuarial present value of accumulated benefits exceeds plan assets and accrued pension

liabilities. At November 30, 2003 and 2002, our single employer plans had aggregated additional minimum pension liability adjustments, less allowable intangible assets, of \$14 million and \$15 million, respectively, which are included in AOCI.

In addition, P&O Cruises participated in a Merchant Navy Ratings Pension

Fund ("MNRPF"), which is a defined benefit multiemployer pension plan. This

plan has a significant funding deficit and has been closed to further benefit

accrual since prior to the completion of the DLC transaction. P&O Cruises,

along with other unrelated employers, are making payments into this plan under

a non-binding Memorandum of Understanding to reduce the deficit. According

ly,

at November 30, 2003, we had recorded a long-term pension liability of \$19 million, which represented our estimate of the present value of the entire liability due by us under this plan.

P&O Cruises, Princess and Cunard Line Limited also participate in an industry-wide British merchant navy officers pension fund ("MNOFF"), which also is a defined benefit multiemployer pension plan that is available to certain of their shipboard British officers. The MNOFF is divided into two sections, the "New Section" and the "Old Section", each of which covers a different group of participants, with the Old Section closed to further benefit accrual and the New Section only closed to new membership. Holland America Line also participates in a Dutch shipboard officers defined benefit multiemployer pension plan. Our multiemployer yearly pension fund plan expenses are based on the amount of contributions we are required to make annually into the plans.

Total expense for all of our defined benefit pension plans, including our multiemployer plans, was \$17 million, \$11 million and \$8 million in fiscal 2003, 2002 and 2001, respectively.

As of March 31, 2003, the date of the most recent formal actuarial valuation prepared by the MNOFF's actuary, the New Section of the MNOFF was estimated to have a fund deficit of approximately 200 million sterling, or \$340 million, assuming a 7.7% discount rate. At November 30, 2003, our external actuary informally updated the March 31, 2003 valuation and estimated that the New Section deficit was approximately 640 million sterling, or \$1.1 billion, assuming a 5.3% discount rate. The 5.3% is the assumed discount rate we have used for determining our other foreign pension plans obligations. Based solely upon our share of current contributions to the MNOFF, our share of these deficit amounts would be between \$27 million and \$85 million, depending on whether the deficit was \$340 million or \$1.1 billion,

respectively. However, the extent of our portion of any liability with respect to the fund's deficit is uncertain, and is the subject of ongoing litigation, the outcome of which cannot be determined at this time. In addition, the amount of the fund deficit is subject to estimates and assumptions, which could cause the deficit amount to vary considerably.

A substantial portion of any MNOFF fund deficit liability which we may have relates to P&O Cruises and Princess liabilities which existed prior to the DLC transaction. However, since the MNOFF is a multiemployer plan and it is not probable that we will withdraw from the plan nor is our share of the liability certain, we are required to record our MNOFF plan expenses, including any contributions to fund the deficit, as they are contributed, instead of as a Carnival plc acquisition liability that existed at the DLC transaction date. It is currently expected that deficit funding contributions, if any, will be required to be paid over at least ten years.

#### Defined Contribution Plans

We have several defined contribution plans available to substantially all employees. We contribute to these plans based on employee contributions, salary levels and length of service. Total expense relating to these plans was \$12 million, \$8 million and \$8 million in fiscal 2003, 2002 and 2001, respectively.

#### NOTE 15 - Earnings Per Share

Our basic and diluted earnings per share were computed as follows (in millions, except per share data):

	Years Ended November 30,		
	-----		
	2003	2002	2001
1	----	----	----
Net income	\$1,194	\$1,016	\$92

	Interest on dilutive convertible notes	5		
		-----		
	Net income for diluted earnings			
6	per share	\$1,199	\$1,016	\$92
		=====	=====	===
=				
	Weighted-average common and ordinary			
	shares outstanding	718	587	58
5				
	Dilutive effect of convertible notes	4		
	Dilutive effect of stock plans	2	1	
2				
		-----	-----	---
-				
	Diluted weighted-average shares			
	outstanding	724	588	58
7				
		=====	=====	===
=				
	Basic earnings per share	\$1.66	\$1.73	\$1.5
8				
		=====	=====	===
=				
	Diluted earnings per share	\$1.66	\$1.73	\$1.5
8				
		=====	=====	===
=				

The weighted-average shares outstanding for the year ended November 30 , 2003 includes the pro rata Carnival plc shares since April 17, 2003.

If Carnival Corporation's common stock price reaches specified trigger prices for a defined duration of time within a completed quarter, then, under the terms of various classes of Carnival Corporation's convertible debt securities (each having its own trigger prices), such classes of debt securities will become convertible for the next succeeding quarter, and the shares of Carnival Corporation common stock into which those debt securities become convertible will be considered outstanding for the most recently

completed quarter's diluted earnings per share computation, if dilutive.

Carnival Corporation's Zero-Coupon Notes' contingent conversion trigger price was reached in the second half of fiscal 2003. Accordingly, the diluted earnings per share computation included an adjustment to increase net income for the imputed interest expense recorded on these Zero-Coupon Notes and the diluted weighted-average shares outstanding for fiscal 2003 included the weighted-average of the 17.4 million shares that could be converted at the noteholders' options. The conversion of these notes was only dilutive in the 2003 third quarter.

Our diluted earnings per share computation for fiscal 2003 did not include a maximum of 36.2 million (32.7 million in 2002 and 2001) shares of Carnival Corporation common stock issuable upon conversion of its convertible debt, as this common stock was not issuable under the contingent conversion provisions of these debt instruments (see Note 7).

Options to purchase 8.4 million, 6.0 million and 5.4 million shares for fiscal 2003, 2002 and 2001, respectively, were excluded from our diluted earnings per share computation since the effect of including them was antidilutive.

#### NOTE 16 - Supplemental Cash Flow Information

	Years Ended November 30,		
	-----		
	2003	2002	2001
	----	----	----
		(in millions)	
Cash paid for			
Interest, net of amount capitalized	\$156	\$110	\$109
Income taxes, net	\$ 21		\$ 4
Other noncash investing and financing			

activities	
Common stock received as payment of	
stock option exercise price	\$ 23
Notes received upon the sale of	
the Nieuw Amsterdam	\$60

NOTE 17 - Recent Accounting Pronouncement

In January 2003, as amended, the Financial Accounting Standards Board ("FASB") issued Financial Accounting Standards Board Interpretation ("FIN") No. 46, "Consolidation of Variable Interest Entities." FIN No. 46 requires consolidation of variable interest entities ("VIE's") by the "primary beneficiary", as defined, if certain criteria are met. FIN No. 46 is effective immediately for VIE's created or acquired after January 31, 2003. For pre-existing VIE's, disclosure requirements are effective immediately and consolidation provisions are effective for our 2004 second quarter. In accordance with FIN No. 46, we have determined that we are carrying a loan, initially made in April 2001, to a ship repair facility that is a VIE. Although we use this facility for some of our ship repair work, we are not a "primary beneficiary" and, accordingly, this entity will not be consolidated in our financial statements. At November 30, 2003, our loan to this VIE, which is also our maximum exposure to loss, was \$41 million.

Report of Independent Certified Public Accountants

To the Boards of Directors and Shareholders of  
Carnival Corporation and Carnival plc

In our opinion, the accompanying consolidated balance sheets and the related consolidated statements of operations, cash flows and shareholders' equity present fairly, in all material respects, the financial position of Carnival Corporation & plc (comprising Carnival Corporation and Carnival plc and their respective subsidiaries) at November 30, 2003 and 2002, and the results of their operations and their cash flows for each of the three years in the period ended November 30, 2003 in conformity with accounting principles generally accepted in the United States of America. These financial statements are the responsibility of the Company's management; our responsibility

y

is to express an opinion on these financial statements based on our audits. We conducted our audits of these statements in accordance with auditing standards generally accepted in the United States of America, which require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

As described in Note 2 to the financial statements, the Company adopted SFAS

No.142 "Goodwill and Other Intangible Assets" which changed the method of accounting for goodwill and other intangible assets effective December 1, 2001.

/s/ PricewaterhouseCoopers LLP

Miami, Florida  
January 29, 2004

SCHEDULE C

CARNIVAL PLC - UK GAAP GROUP FINANCIAL INFORMATION SUMMARISED GROUP PROFIT AND LOSS ACCOUNT

to	Eleven months to		Twelve months
	November 30, 2003		December 31, 2002
---	-----		-----
	Continuing operations		Discontinued operations
	operations	operations	Total restated
	-----	-----	-----
		(note 3)	(note 2)
)	US \$ millions		



Turnover	1,403.4	1,398.7	2,802.1	2,519.5
Cost of sales before				
exceptional item	(1,096.7)	(1,008.7)	(2,105.4)	(1,893.9)
)				
Exceptional impairment loss	(50.0)	--	(50.0)	--
	-----	-----	-----	-----
	(1,146.7)	(1,008.7)	(2,155.4)	(1,893.9)
)				
	-----	-----	-----	-----
Administrative expenses				
before exceptional costs	(138.5)	(124.9)	(263.4)	(214.8)
)				
Exceptional transaction costs	(30.7)	--	(30.7)	(117.0)
)				
	-----	-----	-----	-----
	(169.2)	(124.9)	(294.1)	(331.8)
)				
	-----	-----	-----	-----
Total operating profit	87.5	265.1	352.6	293.8
	-----	-----		
(Loss)/profit on sale of				
businesses			(2.7)	1.2
			-----	-----
Profit on ordinary activities				
before interest			349.9	295.0
Net interest payable and similar				
items			(87.0)	(74.0)
)				
			-----	-----
Profit on ordinary activities				
before taxation			262.9	221.0
Taxation			(13.2)	(17.1)
)				
			-----	-----
Profit after taxation for				
the period			249.7	203.9
Dividends			(94.2)	(83.2)
)				
			-----	-----

Retained profit for the period	155.5	120.7
	-----	-----
Earnings per share		
Basic earnings per share (in U.S. dollars)*	\$1.19	\$0.98
Diluted earnings per share (in U.S. dollars)*	\$1.19	\$0.98
Dividend per share (in U.S. dollars)*	\$0.46	\$0.40
Weighted average number of shares in issue (in millions)		
-Basic*	209.3	208.0
-Diluted*	210.7	209.0

\* Stated after the share consolidation (which took place on completion of the

dual listed company ("DLC") transaction with Carnival Corporation on April 17,

2003, in which every 3.3289 shares of Carnival plc were consolidated into 1 share of Carnival plc).

See accompanying notes to the group financial information. This financial information only presents the UK GAAP results of Carnival plc, and does not include the consolidated results of Carnival Corporation.

CARNIVAL PLC - UK GAAP GROUP FINANCIAL INFORMATION SUMMARISED GROUP  
BALANCE SHEET

	As at November 30, 2003	As at December 31, 2002
	-----	-----
US \$ millions		restated (note 2)
Goodwill	141.2	127.1
Ships	5,676.4	4,472.6
Ships under construction	396.9	907.4
Properties and other fixed assets	256.5	249.4
Investments	5.6	16.3
	-----	-----
Total fixed assets	6,476.6	5,772.8
	-----	-----
Current assets		
Stocks	99.0	87.4
Debtors	282.3	225.0
Cash at bank and in hand	186.3	162.1
	-----	-----
	567.6	474.5
Creditors: amounts falling		

due within one year	(1,300.1)	(996.7)
	-----	-----
Net current liabilities	(732.5)	(522.2)
	-----	-----
Total assets less current liabilities	5,744.1	5,250.6
Creditors: amounts falling due after more than one year	(2,783.7)	(2,516.8)
Provisions for liabilities and charges	(19.1)	(13.7)
	-----	-----
Net assets	2,941.3	2,720.1
	-----	-----
Equity shareholders' funds	2,941.0	2,719.9
Equity minority interests	0.3	0.2
	-----	-----
	2,941.3	2,720.1
	-----	-----

See accompanying notes to the group financial information. This financial information only presents the UK GAAP results of Carnival plc, and does not include the consolidated results of Carnival Corporation.

#### CARNIVAL PLC - UK GAAP GROUP FINANCIAL INFORMATION SUMMARISED GROUP CASH FLOW STATEMENT

	Eleven months to November 30, 2003	Twelve months to December 31, 2002
	-----	-----
US \$ millions		
Net cash inflow from operating activities	606.4	576.1
Returns on investments and servicing of finance	(110.7)	(104.0)
Taxation	(21.0)	6.4
	-----	-----
Net cash inflow before capital expenditure	474.7	478.5
Capital expenditure		
<b>Purchase</b>		
of ships	(698.2)	(1,124.1)
<b>Purchase</b> of other fixed <b>assets</b>		
(35.5)	(32.4)	
<b>Purchase</b>		
of own shares	(7.3)	--
Disposal of other fixed <b>assets</b>		
2.2	--	
	-----	-----
Net cash outflow for capital expenditure	(738.8)	(1,156.5)

	-----	-----
Acquisitions and disposals		
Acquisition of subsidiary	(65.7)	--
Disposal of subsidiaries		
and long-term investments	6.0	3.1
	-----	-----
Net cash (outflow)/inflow for		
acquisitions and disposals	(59.7)	3.1
	-----	-----
Equity dividends paid	(62.5)	(85.0)
	-----	-----
Net cash outflow before		
financing	(386.3)	(759.9)
Financing		
Issue of ordinary share capital	27.8	3.9
Other net cash inflow from financing	388.4	811.4
	-----	-----
Net cash inflow from financing	416.2	815.3
	-----	-----
Increase in cash in the period	29.9	55.4
	-----	-----
Reconciliation to net debt		
Net debt at beginning of period	(2,471.9)	(1,436.4)
Increase in net cash	29.9	55.4
Movements in borrowings	(388.4)	(811.4)
Non-cash movements in borrowings		
Inception of ship leases	--	(129.9)
Amortisation of bond issue costs	(1.7)	(1.9)
Exchange adjustments	(97.0)	(147.7)
	-----	-----
Net debt at end of period	(2,929.1)	(2,471.9)
	-----	-----

The prior year adjustments have no impact on the cash flow as previously reported for the year ended December 31, 2002.

See accompanying notes to the group financial information. This financial information only presents the UK GAAP results of Carnival plc, and does not include the consolidated results of Carnival Corporation.

CARNIVAL PLC - UK GAAP GROUP FINANCIAL INFORMATION RECONCILIATION OF MOVEMENTS IN SHAREHOLDERS' FUNDS

Eleven months to	Twelve months to
November 30, 2003	December 31, 200

	-----	-----
		restated (note 2)
US \$ millions		
Profit for the period	249.7	203.9
Exchange movements	95.3	44.0
	-----	-----
Total recognised gains for the period	345.0	247.9
Dividends	(94.2)	(83.2)
New shares issued	27.8	3.9
Shares to be issued	(57.5) *	10.7
	-----	-----
Net increase in shareholders' funds	221.1	179.3
Shareholders' funds at beginning of period (originally \$2,629.4 million at January 1, 2002 before deducting prior year adjustments of \$88.8 million)	2,719.9	2,540.6
	-----	-----
Shareholders' funds at end of period	2,941.0	2,719.9
	-----	-----

\* Represents outstanding contingent consideration at December 31, 2002 to be

settled by the issue of shares but which, following the formation of the DLC,  
has been paid in cash.

See accompanying notes to the group financial information. This financial  
information only presents the UK GAAP results of Carnival plc, and does not  
include the consolidated results of Carnival Corporation.

#### CARNIVAL PLC - NOTES TO UK GAAP GROUP FINANCIAL INFORMATION

##### Note 1. Basis of preparation

On April 17, 2003, Carnival Corporation and Carnival plc (formerly known

as P&O Princess Cruises plc) completed a dual listed company ("DLC")  
transaction (the "DLC transaction"), which implemented the Carnival

Corporation & plc DLC structure. The DLC structure combined the businesses of

Carnival Corporation and Carnival plc through a number of contracts and  
amendments to Carnival Corporation's articles of incorporation and by-laws  
and

to Carnival plc's memorandum of association and articles of association. The

two companies have retained their separate legal identities and each company's

shares continue to be publicly traded on the New York Stock Exchange ("NYSE")

for Carnival Corporation and the London Stock Exchange for Carnival plc. In

addition, Carnival plc's ADS's are traded on the NYSE. However, the two

companies operate as if they were a single economic enterprise. The contracts

governing the DLC structure provide that both companies each continue to have

separate boards of directors, but the boards and senior executive management

of both companies are identical.

In order to provide the Carnival Corporation and Carnival plc shareholders with the most meaningful picture of their economic interest in the DLC formed by Carnival Corporation and Carnival plc (collectively known as

"Carnival Corporation & plc"), consolidated financial statements and

management commentary of Carnival Corporation & plc have been included in the

Carnival Corporation & plc 2003 Annual Report. The consolidated Carnival

Corporation & plc financial statements have been prepared under purchase

accounting principles whereby the DLC transaction has been accounted for as an

acquisition of Carnival plc by Carnival Corporation. Therefore, the consolidated Carnival Corporation & plc financial statements include Carnival

plc from April 17, 2003, being the effective date of the acquisition by

Carnival Corporation, to November 30, 2003 and Carnival Corporation for the full year ended November 30, 2003. These consolidated Carnival Corporation &

plc financial statements have been prepared under U.S. GAAP on the basis that

all significant financial and operating decisions affecting the DLC companies

are taken on the basis of U.S. GAAP information and consequences.

The standalone Carnival plc UK GAAP financial information is required to satisfy reporting requirements of the UKLA and does not include the results of Carnival Corporation. However, the Directors consider that within the DLC arrangement the most appropriate presentation of Carnival plc's results and financial position is by reference to the U.S. GAAP financial statements of Carnival Corporation & plc, which is included in the attached Schedule B.

Except for the accounting policy changes detailed in Note 2, the accounts for the period ended November 30, 2003 have been prepared using the accounting policies disclosed in the Annual Report and Accounts for the year ended December 31, 2002.

Note 2. Prior year adjustments on implementation of the Carnival Corporation & plc DLC

Following the completion of the DLC transaction the following accounting policies were amended so as to conform with those of Carnival Corporation. In addition Carnival plc changed its accounting reference date to November 30, to align it with that of Carnival Corporation's. The prior period information is for the twelve months ended December 31, 2002.

(a) Cruise revenues and expenses  
Carnival plc's previous accounting policy was initially to record deposits received on sales of cruises as deferred income and recognise them, together with revenues from onboard activities and all associated direct costs of a voyage, on a pro rata basis over the duration of the voyage. Carnival plc's new accounting policy is to recognise these items generally upon completion of voyages with durations of ten days or less

and on a pro rata basis for voyages in excess of ten days. The change to

the balance sheet is an increase in net current liabilities of \$9.5 million at December 31, 2002 with a corresponding reduction in shareholders' funds, and a reduction in 2002's profit of \$3.9 million.

(b) Dry-docking costs

Carnival plc's previous accounting policy was to capitalise dry-docking

costs, comprising major repairs and replacements, and expense them using

the straight-line method through the date of the next scheduled dry-dock,

which typically was over two to three years. Carnival plc's new accounting policy is to defer major repairs performed during dry-dock and

expense them over one year, being the estimated period of benefit.

Replacements during a dry-dock are now capitalised as fixed assets on a

component basis and depreciated over their estimated useful lives, with

the estimated net book value of assets being replaced written off. The

change to the balance sheet is an increase in net current liabilities of

\$14.9 million at December 31, 2002 with a corresponding reduction in shareholders' funds and a reduction in 2002's profit of \$5.0 million.

(c) Marketing and promotion costs

Carnival plc's previous accounting policy was to expense all marketing and promotion costs over the period of benefit, not exceeding one year

from the end of the year the cost was incurred. Carnival plc's new

accounting policy is to expense all such costs as incurred, except for brochures and media production costs, which are recorded as prepaid

expenses and charged to the profit and loss account as brochures are

consumed or upon the first airing of the advertisement. The change to

the balance sheet is an increase in net current liabilities of \$69.5 million at December 31, 2002 with a corresponding reduction in

shareholders' funds and an increase in 2002's profit of \$3.8 million.



As a result of these three prior year adjustments, the net effect on Carnival plc's net assets and shareholders' funds as at January 1, 2003 is a reduction of \$93.9 million (January 1, 2002 a reduction of \$88.8 million). Subsequent to the completion of the DLC transaction results under the old accounting policies were not considered relevant and were therefore not maintained, consequently the impact of these three policy changes on the current period's result is not available (2002 - twelve months net reduction in profit \$5.1 million).

Note 3. Post balance sheet event

On December 1, 2003 Carnival Corporation & plc commenced a corporate restructuring involving the transfer within the DLC group of subsidiary companies below Carnival Corporation and Carnival plc. These transactions are being undertaken primarily to facilitate business integration and the flow of funds between affiliated companies.

The principal transactions of the reorganisation, which is expected to be substantially complete by April 2004, are:

\* the transfer by Carnival plc to Carnival Corporation of Princess Cruise Lines Limited and a number of related ship owning entities, the companies which operate and own substantially all of Princess Cruises, together with its obligations under public and private U.S. dollar notes and related derivatives; and

\* the transfer by Carnival Corporation to Carnival plc of the cruise operations of both Cunard Line Limited, excluding Seabourn Cruise Line, and Costa Finance S.A., as well as Carnival Corporation's U.S., UK and Mexican land based operations, including its Alaska and Canadian Yukon tour businesses.

The consideration for the transfer of assets, liabilities and financial

1

instruments between the two companies was or will be based on fair market values.

Pursuant to these transactions, Princess Cruises is treated as a discontinued operation in the Carnival plc 2003 Annual Report. Princess Cruises' turnover for the eleven month period was \$1,398.7 million (2002 - twelve months \$1,364.1 million) and operating profit was \$265.1 million (2002 - twelve months \$228.2 million).

This series of transactions is effectively a group reconstruction and Carnival plc will apply merger accounting principles to reflect the combination with Cunard, Costa and the other assets being acquired from Carnival Corporation. These transactions do not give rise to a consolidated profit or loss.

END

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Petrofund Energy Trust Reports Financial and Reserve Results for 2003.

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CALGARY, Alberta--(BUSINESS WIRE)--Feb. 18, 2004

Petrofund Energy Trust (AMEX:PTF) (TSX:PTF.UN) is pleased to present its year end financial results for 2003 as well as selected information from its independent engineering reserve report. Attractive commodity prices and successful drilling and acquisition programs all contributed to Petrofund's strong 2003 results.

```
-- a 67% increase in cash flow to $187.6 million
-- a 22% increase in distributions to $2.09 per unit
-- a 2003 payout ratio of 70%
-- year end debt to cash flow ratio of 0.59
-- a 10% increase in production to 28,418 boepd
-- a 24% reduction per boe in General and Administrative costs
-- an increase in the proved plus probable reserve life index to
11.1 years
-- replacement of 200% of 2003 annual production through
acquisitions and development
-- disposition of high cost, low RLI properties for total
proceeds of $33.7 million
-- a 3% net increase in reserves after acquisitions,
dispositions, revisions and production
```

## HIGHLIGHTS

(thousands of Canadian dollars and units, except per unit amounts)

## INCOME STATEMENT

Revenues	\$ 393,109	\$ 270,669	45%
Cash flow (1)	\$ 187,585	\$ 112,570	67%
Cash flow available for distribution (2)	\$ 150,712	\$ 103,095	46%
Cash flow available for distribution per unit (2)			
Before allocation for capital	\$ 2.96	\$ 2.27	30%
Allocation for capital	\$ (0.49)	\$ (0.20)	(145)%
After allocation for capital	\$ 2.47	\$ 2.07	19%
Cash distributions paid per unit	\$ 2.09	\$ 1.71	22%
Net income	\$ 85,804	\$ 24,379	252%
Net income per unit			
Basic	\$ 1.41	\$ 0.49	188%
Diluted	\$ 1.40	\$ 0.49	186%

OUTSTANDING (3)			
Weighted average	61,010	49,922	22%
Diluted	61,153	49,968	22%
At period end	73,628	54,108	36%

Working capital (deficit)	\$	(30,006)	\$	(6,909)	(334)%
Property, plant and equipment and other assets	\$	879,633	\$	835,366	5%
Long-term debt	\$	110,315	\$	219,218	50%
Unitholder's equity	\$	649,240	\$	480,097	35%

ENTERPRISE VALUE (4)	\$1,493,780	\$ 806,286	85%
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- (1) Reserves at December 31, 2003, are based on total proved plus probable company interest reserves prior to royalties as defined in National Instrument 51-101 ("NI 51-101"). Reserve numbers for other years are based on established company interest, (proved plus 50 per cent probable) reserves prior to royalties.

#### MANAGEMENT DISCUSSION & ANALYSIS

##### NAME CHANGE AND REVISED TRADING SYMBOL

This is the first annual report that reflects the name change of the Trust to Petrofund Energy Trust ("Petrofund" or the "Trust") from NCE Petrofund. The name change was announced on October 23, 2003, and became effective November 1, 2003. On the same date, the name of the Trust's 100% owned subsidiary was changed to Petrofund Corp. ("PC") from NCE Petrofund Corp. As a result of the name change, the Trust adopted the new trading symbols PTF.UN on the Toronto Stock Exchange and PTF on the American Stock Exchange. The Trust units commenced trading under the new symbols on November 3, 2003.

The name change reflects the restructuring of the Trust. The restructuring began with the internalization of management early in 2003 and the consolidation of the remaining activities in the Calgary office over the year. Petrofund has an experienced and competent team of oil and gas professionals and support groups who have assembled an excellent portfolio of quality assets. This team has been an instrumental part of the significant growth of the entity which had an enterprise value of \$1.5 billion as at December 31, 2003.

##### SPECIAL NOTES

The following discussion and analysis of financial results should be read in conjunction with the consolidated financial statements of the Trust for the fiscal years ended December 31, 2003 and 2002 presented later in this report. This commentary is based on information available to February 15, 2004.

All amounts are stated in Canadian dollars unless otherwise noted. Where amounts and volumes are expressed on a barrel of oil equivalent basis, gas volumes have been converted to barrels of oil at 6,000 cubic feet per barrel (6 mcf/bbl).

Management uses cash flow (before changes in non-cash working capital) to analyze operating performance and leverage. Cash flow as presented does not have any standardized meaning prescribed by Canadian GAAP and may not be comparable with the calculation of similar measures for other entities. Cash flow as presented is not intended to represent operating cash flows or operating profits for the period, nor should it be viewed as an alternative to cash flow from operating activities, net earnings or other measures of financial performance calculated in accordance with Canadian GAAP. All references to cash flow throughout this report are based on cash flow before changes in non-cash working capital.

Reserves at December 31, 2003, are based on total proved plus probable company interest reserves prior to royalties as defined in National Instruments 51-101 ("NI 51-101"). Reserves volumes and values for 2003 have been calculated and disclosed in accordance with this standard. Reserve numbers for other years and previously announced acquisitions for the current year, are based on established company interest (proved plus 50% probable) reserves prior to royalties. Under those definitions, probable reserves were adjusted by a factor to account for the risk associated with their recovery. The Trust previously applied a risk factor of 50% in reporting probable reserves. Under current NI 51-101 reserves definitions, estimates are prepared such that the full proved plus probable reserves are estimated to be recoverable (proved plus probable reserves are effectively a "best estimate"). The attached reconciliation reflects current probable versus previous risk adjusted (50%) probable reserves reported by the Trust.

##### FORWARD-LOOKING STATEMENTS

This disclosure includes statements about expected future events

and/or financial results that are forward-looking in nature and subject to substantial risks and uncertainties. For those statements, Petrofund claims the protection of the safe harbor for forward-looking statements provisions contained in the U.S. Private Securities Litigation Reform Act of 1995. Petrofund cautions that actual performance will be affected by a number of factors, many of which are beyond its control. These include general economic conditions in Canada and the United States; industry conditions including changes in laws and regulations; changes in income tax regulations; increased competition; and fluctuations in commodity prices, foreign exchange and interest rates. In addition, there are numerous risks and uncertainties associated with oil and natural gas operations and the evaluation of oil and natural gas reserves. As a result, future events and results may vary substantially from what Petrofund currently foresees.

A more complete discussion of the various factors that may affect future results is contained in Petrofund's recent filings with the Securities and Exchange Commission and Canadian securities regulatory authorities.

#### CRITICAL ACCOUNTING ESTIMATES

The preparation of financial statements in accordance with GAAP requires management to make certain judgments and estimates. Changes in these judgments and estimates could have a material impact on the Trust's financial results and financial condition. The Trust has determined that the process of estimating reserves is critical to several accounting estimates. The process of estimating reserves is complex and requires significant judgments and decisions based on available geological, geophysical, engineering and economic data. These estimates may change substantially as additional data from ongoing development and production activities becomes available, and as economic conditions impacting oil and natural gas prices, operating costs, and royalty burdens change. Reserve estimates impact net income through depletion, the provision for site reclamation and abandonment and in the application of the ceiling test, whereby the value of the oil and natural gas assets are subjected to an impairment test. The reserve estimates are also used to assess the borrowing base for the Trust's credit facilities. Revision or changes in the reserve estimates can have either a positive or a negative impact on net income or the borrowing base of the Trust.

#### 2003 HIGHLIGHTS

The Trust paid out cash distributions of \$127.3 million or \$2.09 per unit, an increase of 22% over the \$1.71 per unit paid in 2002.

The Trust's payout ratio for the year was 70% (87% for the fourth quarter).

Net income increased 252% to \$85.8 million.

The Trust generated cash flow of \$187.6 million, an increase of 67% over 2002.

Production on a boe basis increased 10% to 28,418 boepd.

Average prices were relatively strong, up 32% on a boe basis from the prior year. The Canadian dollar strengthened in the second half of the year more than offsetting the increase in the West Texas Intermediate ("WTI") U.S. oil prices. The average WTI price in the second half of 2003 was up 9% to \$30.16 a barrel from the same period in 2002, however, the Canadian par price at Edmonton was down 6% or \$2.77 per bbl over the same period.

The internalization of management transaction was completed resulting in the elimination of management fees and lower general and administrative costs.

Petrofund acquired interests in various long-life oil and gas properties for \$115.6 million (excluding the non-cash future income tax adjustment of \$4.7 million on the purchase of Solaris Oil and Gas Inc.). The properties added proved plus probable reserves of 19.4 million boe.

Petrofund continued an active development drilling and farmout program, investing \$71.4 million on development drilling, facilities and other costs. During the year 254 wells were drilled at an overall success

rate greater than 90%. These activities added production at \$28,600 per boepd. The combined result of the acquisition and development programs was to add 20.3 million boe's of reserves and replace 200% of 2003 production.

Petrofund ended 2003 with a very strong balance sheet with long-term debt outstanding equivalent to 59% of 2003 cash flow.

The Trust completed two equity offerings, raising net proceeds of \$193.4 million.

The Trust had a balanced production profile consisting of 49% gas and 51% oil and liquids.

The Trust reached a milestone with market capitalization exceeding \$1.3 billion.

Corporate governance was strengthened including the establishment of Governance, Reserve Audit, and Human Resources and Compensation committees all consisting of independent directors. The Audit committee previously consisted of all independent directors. Petrofund meets all governance guidelines prescribed by the TSX and the AMEX.

#### Internalization of Management

One of the key achievements in the first half of 2003 was the elimination of the external management contract and all related fees.

At the Annual and Special Meeting held on April 16, 2003, unitholders of the Trust voted over 90% in favour of the proposed internalization of management resolution, and on April 29, 2003, the transaction was closed. As a result of the internalization, NCE Petrofund Management Corp. ("NCEP Management"), the Previous Manager of the Trust and NCE Management Services Inc. ("NMSI"), which employed all of the Calgary-based personnel who provided services to the Trust and PC, became wholly-owned subsidiaries of PC. Effective January 1, 2004 all the Calgary employees became direct employees of PC, the operating company.

As a result of the transaction, all management, acquisition and disposition fees payable to the Previous Manager were eliminated effective January 1, 2003, and the Trust's operations were consolidated in Calgary. To ensure an orderly transition of the services previously provided by NCEP Management through its office in Toronto, PC entered into an agreement with Sentry Select Corp. ("Sentry") to provide certain services to the Trust and PC until December 31, 2003. The cost decreased from \$1 million in the first quarter to \$500,000 in the second quarter and to \$250,000 in each of the third and fourth quarters, after which Sentry no longer provides any services to Petrofund. Sentry was an affiliate of NCEP Management and is a company in which John Driscoll, the Chairman of the Board of Directors, owns a controlling interest.

The elimination of management fees and the reduction in general and administrative costs resulting from the streamlining and consolidation of on-going management in Calgary improved the operating structure of the Trust. The internalization was accretive to Petrofund's net asset value, distributions and cash flow per unit.

The elimination of management fees and the increased management ownership further aligned the interests of the unitholders and management and improved Petrofund's competitiveness for acquisitions as a result of the elimination of acquisition and disposition fees. The completion of the internalization is also expected to enhance the attractiveness of the units to a wider range of potential investors, expand the investor base, and may result in a lower cost of capital.

The cost of the internalization to Petrofund was \$30.9 million, consisting of the issue of 1,939,147 exchangeable shares, 100,244 Trust units, and cash of \$8.0 million, including \$3.4 million to repay indebtedness owing to NCEP Management. Initially, each Exchangeable Share was exchangeable into one Trust unit. The exchange rate is adjusted from time to time to reflect distributions paid on each Trust unit after the closing date. The purchase price was based on numerous factors, including a fairness opinion by CIBC World Markets, who were retained by a special committee of the Board of Directors formed to consider this transaction and negotiate the terms of the internalization.

#### CASH DISTRIBUTIONS

Trust unitholders who held their units throughout 2003 received cash distributions of \$2.09 per unit as compared to \$1.71 per unit in 2002 and \$4.24 in 2001. During each of the first two months of 2004, the Trust distributed \$0.16 per unit.

The Trust generated cash flow available for distributions of \$180.7 million in 2003. A total of \$30 million of this cash flow was allocated to capital expenditures during the year in accordance with the Trust's policy to use a portion of the cash flow generated to offset production decline and enhance long-term unitholder returns. The \$30 million represents 17% of cash flow for the year. A total of \$127.3 million was paid out in distributions representing a payout ratio of 70%. In the fourth quarter, the Trust generated cash flow available for distribution of \$41.6 million before deducting \$7.5 million of capital and paid out \$36.3 million in distributions for a payout ratio of 87%. For a detailed analysis of cash flow available for distribution and distributions paid refer to Note 12 to the Consolidated Financial Statements.

At December 31, 2003, the Trust had \$53.5 million available to pay future distributions, capital and other costs, of which \$23.6 million was used to pay the January and February 2004 distributions.

#### RESULTS OF OPERATIONS

##### PRODUCTION

In accordance with Canadian practice, production volumes and reserves are reported on a working interest basis, before deduction of Crown and other royalties, unless otherwise indicated.

Production volumes averaged 28,418 boe/d, an increase of 10% over average production volumes of 25,782 boe/d in the previous year. The majority of the increase is due to the additional properties purchased for \$62 million in the second quarter of 2003, the additional Swan Hills Unit interest purchased in the third quarter of 2003 and the acquisition of NCE Energy Trust on May 31, 2002. Production from the second quarter acquisition is included in this report effective June 1, 2003, and the additional Swan Hills interest is included effective September 1, 2003.

For the years ended December 31,	2003	2002	2001
-----			
Daily Production			
Oil (bbls)	12,454	11,162	8,156
Gas (mmcf)	83.3	76.9	67.2
Natural gas liquids (bbls)	2,079	1,808	1,452
-----			
Total (boe 6:1)	28,418	25,782	20,810
-----			

##### PRICING & PRICE RISK MANAGEMENT

Revenues from the sale of crude oil, natural gas, and natural gas liquids and sulphur increased 45% to \$393.1 million in 2003 from \$270.7 million in 2002 due to a 10% increase in production and 32% increase in prices on a boe basis.

Crude oil sales increased to \$172.3 million in 2003 from \$141.3 million in 2002 due to a 12% increase in production from 11,162 bbl/d in 2002 to 12,454 bbl/d in 2003. The average WTI U.S. oil price increased from \$26.08 per bbl in 2002 to \$31.04 in 2003 or 19%, however, the Canadian par price at Edmonton increased only 8% from \$39.91 per bbl to \$43.14 bbl due to the significant strengthening of the Canadian dollar relative to the U.S. dollar, especially in the last half of the year. The average Canadian wellhead price increased from \$34.68 per barrel in 2002 to \$37.91 per barrel in 2003. Hedging losses reduced the price by \$1.00 per bbl in 2003 and \$2.10 per bbl in 2002. About 72% of the Trust's crude production is sold directly to refiners, up from 62% a year ago and nearly double the level of 2001. This reflects Petrofund's strategy of reducing sales to marketers and middlemen to achieve higher levels of security for both



credit and the actual physical delivery of the crude. The balance of the crude is delivered to marketers. Crude differentials were relatively stable and tight during 2003 with Petrofund's actual differentials from Edmonton postings before hedging at \$4.23/bbl versus \$3.16/bbl the previous year. Western Canadian crude differentials for 2004 are expected to be similar to those seen in 2003. Heavy oil differentials, to which Petrofund has little exposure, may be weaker and the bias is for tighter differentials for the lighter and medium sour crudes comprising the bulk of the Trust's portfolio. Petrofund's crude portfolio is over 97% light and medium crudes.

Natural gas sales increased to \$194.2 million in 2003 from \$110.7 million in 2002 due to an 8% increase in production in addition to a 62% increase in average prices from \$3.95 per mcf in 2002 to \$6.39 per mcf in 2003 net of a hedging loss of \$0.11 per mcf. The monthly AECO price increased from \$4.07 per mcf in 2002 to \$6.71 per mcf in 2003. Production volumes were 83.3 mmcf/d in 2003 compared to 76.9 mmcf/d in 2002. Petrofund sold 34% of its production in 2003 to aggregators at netback pricing, down slightly from 38% in 2002 and similar to volumes delivered in 2001. The Trust sold the remaining 66% on daily and monthly spot market pricing in Alberta, Saskatchewan and British Columbia.

Sales of natural gas liquids increased to \$26.6 million in 2003 from \$18.7 million in 2002 as production increased to 2,079 bbl/d in 2003 from 1,808 bbl/d in 2002. The average price increased from \$28.30 per barrel in 2002 to \$34.66 per barrel in 2003. The majority of the Trust's NGL is sold to two buyers under one-year contract terms at market sensitive pricing. NGL netbacks lagged the recovery in crude oil prices during the year owing to mid-year weakness in natural gas prices. Petrofund expects NGL's to continue to return attractive pricing for 2004 with very strong pricing for condensate.

Crude oil sales accounted for 44% of total production in 2003 (2002 - 43%, 2001 - 39%), while natural gas sales contributed 49% of production in 2003 (2002 - 50%, 2001 - 54%). Natural gas liquid volumes accounted for 7% of total production in all three years. The Trust continues to maintain an excellent balance between oil and gas production.

#### Sales Prices

Average prices for the year ended

December 31,	2003	2002	2001
Oil (1)	\$ 37.91	\$ 34.68	\$ 34.37
Gas (2)	6.39	3.95	5.09
Natural gas liquids	34.66	28.30	32.57
Weighted average (6:1)	\$ 37.87	\$ 28.77	\$ 32.19

(1) The oil price was increased (decreased) per bbl due to hedging	\$ (1.00)	\$ (2.10)	\$ 1.05
(2) The gas price was decreased per mcf due to hedging	\$ (0.11)	\$ -	\$ (0.13)

Production Revenue (millions)

Oil	\$ 172.3	\$ 141.3	\$ 102.3
Gas	194.2	110.7	125.0
Natural gas liquids	26.6	18.7	17.2
Total	\$ 393.1	\$ 270.7	\$ 244.5

The Trust implemented a formal risk management policy which provides the Risk Management Committee with the ability to use specified price risk management strategies up to 50% of crude oil, natural gas and NGL

production including: fixed price contracts; costless collars; the purchase of floor price options; and other derivative financial instruments to reduce price volatility and ensure minimum prices for a maximum of two years beyond the current date. The program is designed to provide price protection on a portion of the Trust's future production in the event of adverse commodity price movement, while retaining significant exposure to upside price movements. In this way the Trust seeks to provide a measure of stability to cash distributions as well as ensure Petrofund realizes positive economic returns from its capital development and acquisition activities.

As at December 31, 2003, Petrofund has hedged 26 mmcf/d of gas and 5,328 bbl/d of crude oil for 2004. The Trust increased its gas hedges for 2004 by 7 mmcf/d and its crude oil hedges by 1,569 bbl/d over the third quarter. Petrofund's 2004 gas hedges include: 18.5 mmcf/d collared between \$5.42/mcf-\$7.90/mcf and 7.5 mmcf/d fixed at \$6.15/mcf. The Trust will lose its floor protection on about 9% of the collared volumes if AECO drops below \$4.74/mcf but will receive a premium of \$1.06/mcf in this event. Petrofund's 2004 crude hedges include 1,995 bbl/d fixed at \$38.59/bbl in the first half and 668 bbl/d fixed at \$36.41 in the second half of the year. The Trust has also collared 4,000 bbl/d in 2004 between \$31.20/bbl-\$36.86/bbl. The Trust will lose its floor protection on 50% of the collared volume in the event WTI averages less than \$27.40/bbl (\$21.13 US). Under these transactions Petrofund will receive a premium of \$3.89/bbl (\$3.00 US) to the actual price. For the first quarter of 2005, the Trust has 9.5 mmcf/d of gas hedged under a \$5.80/mcf-\$8.97/mcf three way collar. At year end, the Petrofund's 2005 crude hedges include 1,000 bbl/d in a three way collar between \$31.12/bbl-\$37.60/bbl.

Petrofund also fixed the price on approximately 50% of its power consumption at \$44.50/MWh for 2004 and 2005 to control future costs. During 2003, the monthly average power costs ranged from \$44.47/MWh to \$89.80/MWh.

In early January 2004, Petrofund entered into the following additional hedge transactions:

- 1) 1,000 bbl/d of crude oil was fixed for March-May 2004 at \$41.92/bbl;
- 2) 1,000 bbl/d of crude oil was fixed for November-December 2004 at \$37.73/bbl;
- 3) 2,000 bbl/d of crude oil for 2005 under a three way WTI collar between \$34.75 and \$43.18/bbl (\$26.81-\$33.30 US). Under this transaction, if WTI averages less than \$30.46 (\$23.50 US), Petrofund will lose the floor protection, but will still receive a \$4.54/bbl (\$3.50 US) premium to the actual price.

The Trust also increased its AECO gas hedges subsequent to year-end by collaring an additional 1.9 mmcf/d between \$5.28/mcf and \$7.65/mcf for the period April 1, 2004 to October 31, 2004.

All foreign exchange calculations in this section of the report incorporate the Bank of Canada US dollar rate at the close on December 31, 2003, (\$1.2965 C\$:US\$). For a complete listing of all hedge transaction details please see Note 14 to the Consolidated Financial Statements.

Royalties	2003	2002	2001
-----			
Royalties (millions)	\$ 84.8	\$ 50.4	\$ 54.7
Average royalty rate (%)	21.6%	18.6%	22.4%
\$/boe	\$ 8.18	\$ 5.36	\$ 7.21

Royalties, which include crown, freehold and overrides paid on oil and natural gas production, increased to \$84.8 million in 2003 from \$50.4 million in 2002, net of the Alberta Royalty Credit. Royalties increased to 21.6% of revenues in 2003 from 18.6% of revenues in 2002 and 22.4% in 2001. The variation in the average rates is mainly due to the fluctuations in natural gas prices as the gas royalty rate changes with natural gas prices.

Expenses	2003	2002	2001
----------	------	------	------

-----				
Expenses (millions)				
Lease operating	\$ 91.3	\$ 74.8	\$ 48.2	
General & administrative	13.0	15.5	14.4	
Management fee	-	4.7	5.3	
Net interest	8.7	8.3	7.8	
-----				
Expenses per boe				
Lease operating	\$ 8.80	\$ 7.95	\$ 6.35	
General & administrative	1.26	1.65	1.90	
Management fee	-	0.50	0.70	
Net interest	0.84	0.88	1.03	
-----				

Lease Operating  
Oil and gas operating expenses increased to \$91.3 million in 2003 from \$74.8 million in 2002 (2001 - \$48.2 million) due to the additional wells on production and the increase in costs on a boe basis. Operating costs on a boe basis increased to \$8.80 in 2003 from \$7.95 in 2002 (2001 - \$6.35).

The most significant contributor to the higher operating costs in 2003 was the increased costs for workover activities. These activities included rate acceleration projects, well repair, facility turnarounds and other facility maintenance work. There are two components to the increased costs. Firstly, costs in general have risen due to high industry activity levels. Secondly, more workover projects were undertaken for production enhancement because the return on these projects is very good in the current product price environment.

#### GENERAL & ADMINISTRATIVE

General and administrative costs decreased to \$13.0 million in 2003 from \$15.5 million in 2002 (2001 - \$14.4 million). Costs decreased 24% to \$1.26 per boe in 2003 from \$1.65 per boe in 2002 as a result of the consolidation of all activities in Calgary and the increased production volumes.

#### MANAGEMENT FEES

No management fees were payable in 2003 and no future fees will be paid due to the internalization of management. Fees of \$4.7 million were paid in 2002 to the Previous Manager (2001 - \$5.3 million).

#### INTEREST

Interest expense increased to \$8.7 million in 2003 from \$8.3 million in 2002 (2001 - \$7.8 million), due to the increase in the average loan balance outstanding.

The bank loan outstanding at December 31, 2003, was \$109.7 million as compared to \$212.3 million at the end of the previous year.

#### DEPLETION AND DEPRECIATION & PROVISION FOR RECLAMATION AND ABANDONMENT

Depletion and depreciation is provided on the unit-of-production method based on total estimated proved reserves. Depletion and depreciation expense was \$113.9 million in 2003 compared to \$98.8 million in 2002 (2001 - \$68.5 million). The depletion rate per boe increased to \$10.98 in 2003 from \$10.50 in 2002 (2001 - \$9.01). The \$0.48 increase in the depletion rate from 2002 to 2003 was mainly due to the negative reserve revisions at the end of 2002. Unproved properties are included in the depletion and depreciation rate. The provision for reclamation and abandonment per boe in 2003 was \$0.60, compared to \$0.62 in 2002 (2001 - \$0.48).

#### RECLAMATION & ABANDONMENT RESERVE

At the end of the year, PC had \$3.8 million set aside in cash to fund future abandonment costs. This cash fund is increased by \$0.075 per

boe produced on an ongoing basis. This cash fund is in place to fund significant future reclamation costs, such as the decommissioning of a major facility.

PC is committed to conducting its operations in a safe and environmentally responsible manner and has an established program in place to manage environmental liabilities. The Trust performs well reclamation and abandonments, flare pit remediation work, etc. on a routine basis to proactively address environmental concerns. Petrofund's activities in this area in 2003 were significant as \$4.7 million was spent on these types of projects. This compares to \$2.2 million in 2002 and \$0.4 million in 2001. PC expects to spend a further \$3 million on reclamation and abandonment work in 2004.

#### NET INCOME

Net income increased to \$85.8 million, up 252% from the \$24.4 million reported in 2002 (2001 - \$54.0). The increase was mainly due to the 35% improvement in operating netbacks as prices were up 32% on a boe basis. In addition, production was up 10% over the prior year.

Net income for the year ended December 31, 2003, was impacted by the costs of the internalization of the management contract and the reduction of income taxes for the decrease in future income tax rates. Net income was reduced by \$30.9 million for management internalization costs and increased by \$36.7 million for future income tax reductions.

#### QUARTERLY FINANCIAL DATA

(\$millions, except per Unit amounts)	Net Oil and Natural Gas Sales(1)	Net Income	Net income per Unit (2)	
			Basic	Diluted
<hr/>				
2003				
First quarter	\$ 84.9	\$ 32.2	\$ 0.59	\$ 0.59
Second quarter	74.8	15.1	0.26	0.26
Third quarter	73.4	14.9	0.23	0.23
Fourth quarter	75.2	23.6	0.33	0.33
	<hr/>			
	\$ 308.3	\$ 85.8	\$ 1.41	\$ 1.40
	<hr/>			
2002				
First quarter	\$ 42.7	\$ 0.9	\$ 0.02	\$ 0.02
Second quarter	53.1	8.5	0.17	0.17
Third quarter	55.8	9.6	0.18	0.18
Fourth quarter	68.6	5.4	0.10	0.10
	<hr/>			
	\$ 220.2	\$ 24.4	\$ 0.49	\$ 0.49
	<hr/>			
2001				
First quarter	\$ 54.4	\$ 26.3	\$ 1.19	\$ 1.19
Second quarter	46.9	16.4	0.60	0.60
Third quarter	45.4	7.7	0.20	0.20
Fourth quarter	43.0	3.6	0.09	0.09
	<hr/>			
	\$ 189.7	\$ 54.0	\$ 1.71	\$ 1.71
	<hr/>			

(1) Net after royalties

(2) Net income per unit numbers are calculated quarterly and therefore do not add.

#### Discussion of Results for the Fourth Quarter of 2003

Production for the fourth quarter of 2003 was 29,211 boe/d as compared to 27,362 boe/d for the same period in the prior year. Oil was up 13% from 12,096 boe/d to 13,645 boe/d. Natural gas was up marginally to 80.3 mmcf/d from 79.9 mmcf/d and natural gas liquids increased to 2,185 boe/d from 1,946 boe/d. Oil revenues increased to \$44.0 million from \$40.6 million due to the increase in volumes as the oil price decreased to \$35.06 per bbl from \$36.48 per bbl. Natural gas revenue was up to \$43.1 million from \$37.9 million mainly due to the natural gas price which increased 13% from \$5.15 per mcf to \$5.84 per mcf. Revenues from natural gas liquids increased to \$6.9 million from \$6.0 million due to volumes and prices. The average price was \$34.46 per bbl in the fourth quarter of 2003, as compared to \$33.34 per bbl in the fourth quarter of 2002.

Royalties increased from \$15.8 million in 2002 to \$19.0 million in 2003. Royalties were 19% of revenue in the fourth quarter of 2002 and 20% in the same period in 2003, mainly due to the increased natural gas prices.

Operating costs increased to \$24.8 million in 2004 from \$21.3 million in 2003, due to the additional wells on production and a general increase in costs experienced by the oil and gas industry.

General and administrative costs decreased from \$3.6 million, or \$1.43 per boe, in the fourth quarter of 2002 to \$2.9 million or \$1.10 per boe for the same period in 2003.

Depletion and site reclamation and abandonment expenses increased from \$28.6 million in 2002 to \$33.7 million in 2003 or \$1.20 per boe.

Income before income taxes was \$11.4 million in the fourth quarter of 2003 as compared to \$10.2 million in the fourth quarter of 2002. Net income, however, was up to \$23.6 million from \$5.4 million due to a future income tax recovery in 2003 of \$12 million as compared to a future tax expense of \$5.0 million in 2002. The future tax liability at December 31, 2002 included a provision for income taxes for entities that were acquired by the Trust. These entities were under audit at the time and the CCRA (Canada Customs and Revenue Agency) had made large proposed adjustments. The Trust was successful in having these adjustments reversed to a minimal amount. As a result, the Trust has taken the provision back into income in 2003.

#### CAPITAL EXPENDITURES

##### Acquisitions

During the year, PC incurred \$115.6 million for property acquisitions, excluding the non-cash future tax adjustment of \$4.7 million recognized on the Solaris Oil and Gas Inc. ("Solaris") acquisition, and acquired 19.4 million boe of Established Reserves. The properties were heavily weighted to oil and had a reserve life index of 14.4 years.

Effective January 1, 2003, PC acquired 100% of the outstanding common share of Solaris, and on February 7, 2003, amalgamated Solaris into PC. PC paid \$7.4 million in cash, and assumed debt and negative working capital of \$1.2 million, for a total cost of the oil and gas properties of \$8.6 million. The acquisition added 720,000 boe of Established Reserves and approximately 200 boe/d of production.

In the second quarter of 2003, PC closed the acquisition of a diverse group of oil and natural gas properties for \$61.7 million after adjustment. The properties added Established Reserves of 9.7 million boe as estimated by the independent engineering firm, Gilbert Laustsen Jung Associates Ltd. At the time of acquisition, production from the properties was approximately 2,300 boe/d of which 42% was natural gas. Production and cash flow has been included in this report effective from June 1, 2003. The properties contained a large percentage of unit production, and had a reserve life index on an Established basis of 11.6 years.

On August 21, 2003, PC purchased a 7.22% interest in Swan Hills Unit #1 for \$37.1 million from a private Canadian company. This acquisition increased PC's interest in the unit, bringing PC's total interest in the unit to 9.87%. This acquisition added 8.5 mmbae of Established Reserves and approximately 1,100 boe/d of production. The Established reserve life index

of the property was over 20 years.

#### Finding & Development Costs

During the year PC incurred \$71.4 million on drilling and development activities as compared to \$40.8 million in 2002. A total of 214 wells were drilled, of which 115 were gas, 84 oil and 15 dry and abandoned for an overall success rate of 93%. These activities added 2,500 boepd of production at an average cost of \$28,600 per boepd and offset more than half of the decline in existing production.

#### Farmout Activities

During 2003, Petrofund entered into farmout agreements with various industry partners which resulted in 40 wells being drilled in 2003 on Petrofund's undeveloped land base. This drilling yielded 32 natural gas wells, 3 oil wells and 5 abandoned wells.

Although terms are slightly different for each farmout, they are generally structured such that Petrofund is carried for the costs of each well and receives a gross overriding royalty before payout of such costs and an after payout working interest for each well which generally equates to 50% of it pre-farmout interest.

#### Disposition of Properties

During 2003, Petrofund disposed of approximately 5 million boe of Established Reserves for \$33.5 million. Eighty percent of these reserves were sold as a package of non-core east central Alberta properties marketed publicly late in the year. All of the properties disposed of were non-core to Petrofund's ongoing operations, had high operating costs and high decline rates. These dispositions are an integral part of Petrofund's ongoing portfolio management process.

A summary of capital expenditures for the last three years is as follows (in millions):

For the years ended December 31,	2003	2002	2001
Property acquisitions (1)	\$ 115.6	\$ 218.5	\$ 222.4
Property dispositions	(33.5)	(30.0)	(3.7)
Net acquisitions	82.1	188.5	218.7
Finding & development costs:			
Land & seismic	2.5	2.8	2.1
Drilling & completion	42.5	22.2	17.0
Well equipping	7.9	6.7	2.1
Tie-ins	5.2	2.7	2.2
Facilities	8.4	3.2	3.5
Other	4.9	3.2	-
Total	71.4	40.8	26.9
Total net capital expenditures	\$ 153.5	\$ 229.3	\$ 245.6

(1) The property acquisition totals exclude non-cash future income tax adjustments for the difference between the cost and tax bases of assets acquired by way of corporate acquisitions.

#### DEBT

The borrowing base was increased to \$265 million, in conjunction with the closing of the second quarter 2003 property acquisition. As at December 31, 2003, the amount outstanding on the credit facility was \$110 million with \$155 million available to finance future activities.

The revolving period on the syndicated facility was scheduled to end on May 30, 2003; however, it has been extended for an additional 364-day period ending May 28, 2004.

#### WORKING CAPITAL

The working capital deficit was \$30 million at December 31, 2003, an increase of \$23.1 from the \$6.9 million deficit at the end of the prior year. The primary reason for this change is a corresponding increase in distributions payable to unitholders of \$23 million. This amount represents the cash flow available for distribution generated during the year in excess of distributions paid.

#### LIQUIDITY AND CAPITAL RESOURCES

Total long-term debt and capital leases decreased \$108.9 million from \$219.2 million at December 31, 2002 to \$110.3 million at the end of the current year.

The major changes in total long term debt were due to:	\$000's
Net proceeds from the May and December equity issues	\$ 193.4
Proceeds received from the exercise of options	20.5
Proceeds received from the sale of properties	33.5
Increases in working capital deficit	23.1
Cash flow available for distributions in excess of distributions paid	23.4
Property acquisitions	(115.6)
Expenditures on oil and gas properties	(71.4)
Miscellaneous	2.0
	\$ 108.9

#### Capitalization Analysis

(\$ thousands, except per unit and percent amounts)	2003	2002	2001
Working capital (deficiency)	\$ (30,006)	\$ (6,909)	\$ (20,564)
Bank debt	109,707	212,253	128,783
Capital lease obligation	608	6,965	16,168
<b>Net debt obligation</b>	<b>\$ 140,321</b>	<b>\$ 226,127</b>	<b>\$ 165,515</b>
Units outstanding and issuable for exchangeable shares	73,628	54,108	41,916
Market Price at December 31,	\$ 18.79	\$ 10.85	\$ 11.97
Market capitalization	\$ 1,383,465	\$ 587,069	\$ 501,731
<b>Total capitalization</b>	<b>\$ 1,523,786</b>	<b>\$ 813,196</b>	<b>\$ 667,246</b>
Net debt as a percentage of total capitalization	9.2%	27.8%	24.8%
Cash flow	\$ 187,585	\$ 112,570	\$ 110,176
Net debt to cash flow	0.7:1.0	2.0:1.0	1.5:1.0

Long-term debt will increase in 2004 due to the capital expenditure program which is expected to be in the \$60 million range. If the Trust is successful in completing one or more significant acquisitions in 2004 these would be financed by further utilization of the credit facility or a combination of additional bank borrowing and a possible equity issue of treasury units.

#### UNITHOLDERS' EQUITY

The Trust had 72,688,577 trust units outstanding at December 31,

2003, compared to 54,108,420 trust units at the end of 2002. In April 2003, 1,939,147 exchangeable shares and 100,244 Trust units were issued in connection with the internalization transaction. During the year, 906,635 Exchangeable Shares were converted to 1,000,000 Trust units and 181,041 were redeemed for cash leaving 851,471 exchangeable shares outstanding at year end which can be converted, at the option of the unitholder into 939,147 trust units. The weighted average number of trust units outstanding including those issuable on the exchange of exchangeable shares, was 61,010,105 trust units for 2003 as compared to 49,921,523 for 2002.

During 2003, the Trust completed two equity offerings. In May 2003, the Trust issued 9.2 million units at a price of \$10.60 per unit for net proceeds of \$92.3 million. In December 2003, 6.6 million units were issued at a price of \$16.20 per unit for net proceeds of \$101.1 million.

During the year, 1,673,404 options were exercised for the same number of trust units generating proceeds of \$20.5 million. (For complete details of options exercised and outstanding at the end of the year refer to note 11 of the Consolidated Financial Statements).

Under the Distribution Reinvestment Plan ("DRIP") unitholders can elect to receive distributions or make optional cash payments to acquire trust units from treasury or in the open market. Under the DRIP plan 316,785 trust units were issued at an average price of \$13.21 for total proceeds of \$4.2 million. In 2002, 288,981 units were issued under the DRIP plan at an average price of \$12.16 per trust unit.

#### TAXES

Current taxes consist of the Federal Large Corporations Tax and some minor amounts relating to income taxes of corporate entities acquired. The Federal Large Corporations Tax is based primarily on the debt and equity balances of PC at the end of the year. The Federal Large Corporations Tax rate is proposed in the Federal Budget of 2003 to be reduced in stages over a period of five years so that by 2008, the tax will be eliminated.

Capital taxes of \$2.5 million in 2003 and \$2.1 million in 2002 are primarily the Saskatchewan Capital Tax and Resource Surcharge, which is based upon Saskatchewan gross revenues.

Future income tax liabilities arise due to the differences between the tax basis of PC's assets and their respective accounting carrying cost. Future income taxes were increased by \$4.7 million due to the

**purchase** of Solaris. This liability arose as the **purchase** price of Solaris's **assets** was in excess of its tax pools. In the Trust's structure, payments are made between PC and the Trust which thereby transfers both income and future tax liability to the individual unitholders. Accordingly, it is the opinion of management that no cash income taxes will be paid by PC in the future and, as such, the future income tax liability recorded on the balance sheet will be recovered through earnings over time. Future income tax recoveries of \$44.5 million in 2003 and \$14.3 million in 2002 have resulted in a remaining future income tax liability of \$77.0 million at December 31, 2003. The future income tax liability was reduced by approximately \$36.7 million to reflect reductions in the Federal and Alberta income tax rates in 2003.

Cash distributions paid to unitholders resident in Canada or the United States have differing tax consequences depending on each unitholder's circumstances. The Trust sets out some brief comments regarding the taxability of the distributions but does not intend to provide legal or tax advice. Unitholders or potential investors should seek their own legal or tax advice in this regard.

Generally, Canadian unitholders include in their income the portion of the distribution that is taxable income earned by the Trust. The portion that is a return of capital reduces the adjusted cost base of the Trust unit of the unitholder. In 2003, 51.223% of distributions paid to unitholders was ordinary income and 48.777% was a return of capital.

Generally, United States unitholders include in their income the portion of the distribution that is taxable income earned by the trust. Such amount is considered a dividend for U.S. purposes and is subject to



Canadian withholding tax. The portion that is a return of capital and not taxable reduces the tax basis of the Trust unit. In 2003, 83.346% of distributions to United States unitholders was dividend income and 16.654% was a return of capital.

#### BUSINESS RISKS

The success of the Trust in meeting its objective of stable distributions over the long term depends mainly on management's ability to:

- 1) Identify and acquire oil and gas properties and/or companies at prices that add value to the Trust.
- 2) Cost effectively add or extend reserves with internal development and drilling or farmouts.
- 3) Manage and control costs.

There are numerous factors beyond management's control that have a major influence on distribution levels including product prices, unforeseen production declines and cost increases from major suppliers. (A detailed assessment of risk factors and offsetting strategies appears elsewhere in this report).

Below is a table that shows sensitivities to pre-hedging cash flow as a result of product price and operational changes. The table is based on actual 2003 prices received and production volumes of 27,000 boepd. These sensitivities are approximations only and are not necessarily valid at other price and production levels. As well, hedging activities can significantly affect these sensitivities.

#### Sensitivity Analysis

	Change	\$000's	\$/unit per year
Price per barrel of oil(1)	\$ 1.00 U.S.	\$ 5,331	\$ 0.072
Price per mcf of natural gas(1)	\$ 0.25 Cdn.	\$ 5,585	\$ 0.076
US/Cdn exchange rate	\$ 0.01	\$ 2,650	\$ 0.036
Interest rate on debt (\$125 million)	1%	\$ 1,250	\$ 0.017
Oil production volumes(1)	100 bbl/day	\$ 1,131	\$ 0.015
Gas production volumes(1)	1 mmcf/day	\$ 1,784	\$ 0.024

(1) After adjustment for estimated royalties.

#### OUTLOOK FOR 2004

The level of cash flow for 2004 will be affected by oil and gas prices, the Canadian - US dollar exchange rate and the Trust's ability to add reserves and production in a cost effective manner. Both product prices and the exchange rate showed significant volatility in 2003 and this trend is expected to continue in 2004. The acquisition market is expected to continue to be active and supply should increase with the recent announcement by three large producers of their intention to dispose of their Canadian properties in 2004. Nevertheless, competition for these assets is expected to be fierce due to increased demand resulting from the increasing number of oil and gas companies that have converted to a trust structure. We expect prices for quality, long life assets to be at or near record levels. Petrofund expects to be an active participant in this market but success will be tempered by a commitment to maintain historic discipline and bid only at levels consistent with the best long term interest of our unitholders.

Acquisition activities will be complemented by an extensive drilling and farmout program that will be conducted on our existing land base.

Although product prices have remained at high levels, the strengthening of the Canadian dollar in the second half of 2003 significantly moderated the net effect of these prices on Petrofund's cash flow. We expect the Canadian dollar to remain very strong in the short term with a possible decrease toward the end of 2004.

Petrofund pursues a well defined risk management program to help offset the effect of price fluctuations. This program utilizes collars as

the main hedging tool but Petrofund also enters into fixed price transactions when commodity prices approach historic highs. To date, the Trust has not entered into any currency related transactions. A discussion of the risk management strategies and hedged position appears elsewhere in this report.

#### CONTRACTUAL OBLIGATIONS

PC has the following long-term commitments for the years indicated: (thousands of dollars)					
	2004	2005	2006	2007	2008
Capital leases (Note 6)	\$ 0.4	\$ 0.6	\$ -	\$ -	\$ -
Office lease	1.1	0.8	-	-	-
Processing & transportation agreement	1.8	1.8	2.0	2.1	2.2
CO2 purchases	3.9	4.7	4.1	3.5	3.3
	\$ 7.2	\$ 7.9	\$ 6.1	\$ 5.6	\$ 5.5

(1) The amount increases to \$2,223 in 2008 and then decreases to \$1,474 in 2019 at which time it expires.

#### OFF-BALANCE SHEET ARRANGEMENTS/ VARIABLE INTEREST ENTITIES

The Trust has no off-balance sheet arrangements or variable interest entities.

#### IMPACT OF NEW CANADIAN ACCOUNTING PRONOUNCEMENTS

In September 2002, the CICA approved Section 3063, "Impairment of Long-Lived Assets" (S.3063). S.3063 establishes standards for the recognition, measurement and disclosure of the impairment of long-lived assets, and applies to long-lived assets held for use. An impairment loss is recognized when the carrying amount of a long-lived asset is not recoverable and exceeds its fair value. The new Section is effective for fiscal years beginning on or after April 1, 2003. The application of the impairment test for companies following the full cost method of accounting for oil and natural gas activities has been included in Accounting Guideline 16, "Oil and Gas Accounting - Full Cost" AcG-16 issued in September 2003. The new guideline limits the carrying value of oil and natural gas properties to their fair value. The fair value is equal to estimated future cash flows from proved and risked probable reserves using future price forecasts and costs discounted at a risk-free rate. This differs from the current cost recovery ceiling test that uses undiscounted cash flows and constant prices and costs less general and administrative and financing costs. There is no write-down of the Trust's oil and gas royalty and property interests under either method at December 31, 2003. AcG-16 also adopted the reserve evaluation and disclosure requirements of NI 51-101 which have been followed in the preparation of this report.

In December 2001, the Canadian Institute of Chartered Accountants (CICA) issued Accounting Guideline 13, "Hedging Relationships" (AcG-13) originally effective for fiscal years commencing on or after July 1, 2002. Implementation was then postponed to the fiscal years commencing on or after July 1, 2003. AcG-13 established certain conditions for when hedge accounting may be applied. If hedge accounting is not applied, the fair values of derivative financial instruments are recorded as an asset or a liability on the balance sheet. As the guideline is effective for fiscal years beginning on or after July 1, 2003, Petrofund will be adopting the guideline effective January 1, 2004. Petrofund enters into numerous derivative financial instruments to reduce price volatility and establish minimum prices for a portion of its oil and natural gas production. These contracts are effective economic hedges, however, a number do not qualify for hedge accounting due to the very detailed and complex rules outlined in AcG-13. Petrofund has elected to use the fair value method of accounting for all derivative transactions as we believe it would be confusing to the reader if the Trust were to use hedge accounting for some of its hedging

contracts and fair value accounting for others. Also the additional costs to use hedge accounting would be significant as detailed documentation requirements must be met and each individual contract would need to be analyzed to determine which method of accounting to use. Effective January 1, 2004, Petrofund will record the fair value of the derivative financial instruments as at December 31, 2003, in the amount of \$6.8 million as a liability on the balance sheet. The change in the fair value from period to period will be recorded in the income statement on a separate line as unrealized gains/losses. This line item will also include realized gains and losses on the derivative financial instruments which currently are recorded in oil and gas sales.

In December 2002, the CICA approved Section 3110, "Asset Retirement Obligations" which requires liability recognition for retirement obligations associated with our property, plant and equipment. The obligations are initially measured at fair value, which is the discounted future value of the liability. The fair value is capitalized as part of the cost of the related assets and amortized to expense over their useful lives. The liability accretes until the retirement obligations are settled. S.3110 is effective for fiscal years beginning on or after January 1, 2004. The accrued reclamation and abandonment liabilities on the balance sheet which have been calculated on a unit of production basis will be reversed January 1, 2004. Oil and gas properties will be increased and a liability set up for the amount calculated under the new standard. In 2004 the accounting will follow the new standard and the comparative numbers for 2003 and prior periods will be restated.

The impact of this standard will be to increase oil and gas royalty and property interests on the balance sheet by \$18.6 million at December 31, 2003, and by \$18.5 million at December 31, 2002. The accrued reclamation and abandonment liability (asset retirement obligation) will increase to \$34.4 million at December 31, 2003, from \$16.8 million and the liability at December 31, 2002 will increase to \$34.5 million from \$15.3 million. The effect on the income statement will be to increase (decrease) net income before income taxes by \$ 1.5 million in 2003, (2002 - \$1.1 million, 2001 - \$(0.9) million).

Effective March 31, 2004, the Trust and all reporting issuers in Canada will be subject to new disclosure requirements as per National Instrument 51-102 "Continuous Disclosure Obligations". This new instrument is effective for fiscal years beginning on or after January 1, 2004. The Instrument proposes shorter reporting periods for filing of annual and interim financial statements, MD&A and the Annual Information Form ("AIF"). The Instrument also proposes enhanced disclosure in the annual and interim financial statements, MD&A and AIF. Under this new instrument, it will no longer be mandatory for the Trust to mail annual and interim financial statements and MD&A to unitholders, but rather these documents will be provided on an "as requested" basis. The Trust continues to assess the implications of this new instrument which will be implemented in 2004.

Other accounting standards issued by the CICA during the year ended December 31, 2003, are not expected to impact the Trust at this time.

#### CONTROLS AND PROCEDURES

Evaluation of disclosure controls and procedures. The Trust's principal executive officer and its principal financial officer, after evaluating the effectiveness of the Trust disclosure controls and procedures (as defined in U.S. Exchange Act Rules 13a - 14(C) and 15d - 14(C)) as of a date within 90 days prior to the filing date of this annual report, have concluded that, as of such date, the Trust's disclosure controls and procedures were adequate and effective to ensure that material information relating to the Trust and its subsidiaries would be made known to them by others within those entities.

Changes in internal controls. There were no significant changes in the Trust's internal controls or in other factors that could significantly affect the Trust's internal controls subsequent to the date of their

evaluation nor were there any significant deficiencies or material weaknesses in the Trust's internal controls. As a result, no corrective actions were required or undertaken.

#### STATEMENT OF CORPORATE GOVERNANCE

Petrofund adheres to all required regulatory and security commission guidelines as required by the TSX and the AMEX at December 31, 2003. This has resulted in Petrofund's acceptance of a 'best practices' corporate governance structure. To this end, four sub-committees of the Board, all composed of independent directors, act in the best interests of the Trust. Additional information about the board and the committee compositions are detailed in this annual report and within Petrofund's annual information form.

#### Consolidated Balance Sheet (unaudited) (thousands of dollars)

As at December 31,	2003	2002
-----		
Assets		
Current assets		
Cash	\$ 2,182	\$ -
Accounts receivable	48,268	41,953
Due from affiliates	-	164
Prepaid expenses and deferred charges	10,036	10,090
-----		
Total current assets	60,486	52,207
Reclamation and abandonment reserve (Note 7)	3,779	3,001
Oil and gas royalty and property interests, at cost less accumulated depletion and depreciation of \$468,208 (2002 - \$354,309) (Notes 2 and 3)	879,633	835,366
-----		
	\$ 943,898	\$ 890,574
-----		
Liabilities and unitholders' equity		
Current liabilities		
Bank overdraft	\$ -	\$ 1,572
Accounts payable and accrued liabilities	36,684	22,007
Payable to affiliates (Note 4)	-	2,168
Current portion of capital lease obligations (Note 6)	356	3,304
Distributions payable to Unitholders	53,452	30,065
-----		
Total current liabilities	90,492	59,116
Long-term debt (Note 5)	109,707	212,253
Capital lease obligations (Note 6)	608	6,965
Future income taxes (Notes 2 and 15)	77,005	116,845
Accrued reclamation and abandonment costs	16,846	15,298
-----		

Total liabilities	294,658	410,477
Unitholders' equity (Notes 8 and 9)	649,240	480,097
	\$ 943,898	\$ 890,574

Signed on behalf of Petrofund Energy Trust by Petrofund Corp.:

Jeffery E. Errico, Director

James E. Allard, Director

The accompanying notes to consolidated financial statements are an integral part of this consolidated balance sheet.

Consolidated Statement of Operations  
(unaudited) (thousands of dollars)

For the years ended December 31,	2003	2002	2001
Revenues			
Oil and gas sales	\$ 393,109	\$ 270,669	\$ 244,512
Royalties, net of incentives	(84,804)	(50,427)	(54,746)
	308,305	220,242	189,766
Expenses			
Lease operating	91,251	74,774	48,237
Management fee (Note 4)	-	4,728	5,307
Interest on long-term debt (Note 5)	8,748	8,291	7,806
General and administrative (Note 4)	13,047	15,514	14,436
Capital taxes	2,454	2,137	1,719
Depletion and depreciation	113,899	98,777	68,453
Provision for reclamation and abandonment	6,199	5,856	3,680
Internalization of management contract (Note 9)	30,850	-	-
	266,448	210,077	149,638
Net income before provision for income taxes	41,857	10,165	40,128
Provision for (recovery of) income taxes (Note 15)			
Current	569	38	1,701
Future	(44,516)	(14,252)	(15,561)
	(43,947)	(14,214)	(13,860)
Net income	\$ 85,804	\$ 24,379	\$ 53,988

Net income per trust unit

(Notes 2 and 16)

Basic	\$ 1.41	\$ 0.49	\$ 1.71
Diluted	\$ 1.40	\$ 0.49	\$ 1.71

Consolidated Statement Of Unitholders' Equity  
(unaudited) (thousands of dollars)

For the years ended December 31,	2003	2002	2001
Balance, beginning of year	\$ 480,097	\$ 398,702	\$ 136,812
Units issued, net of issue costs (Note 8)	226,325	154,460	318,548
Exchangeable shares issued/converted to Trust units (Note 10)	10,518	-	-
Redemption of exchangeable shares (Note 10)	(2,792)	-	-
Net income	85,804	24,379	53,988
Distributions accruing to Unitholders (Note 12)	(150,712)	(97,444)	(110,646)
Balance, end of year	\$ 649,240	\$ 480,097	\$ 398,702

Consolidated Statement of Cash Flows  
(unaudited) (thousands of dollars)

For the years ended December 31,	2003	2002	2001
Cash provided by (used in):			
Operating activities			
Net income	\$ 85,804	\$ 24,379	\$ 53,988
Add items not affecting cash:			
Depletion and depreciation	113,899	98,777	68,453
Provision for reclamation and abandonment	6,199	5,856	3,680
Future income taxes	(44,516)	(14,252)	(15,561)
Actual abandonment costs incurred (Note 7)	(4,651)	(2,190)	(384)
Internalization of management contract (Note 9)	30,850	-	-
Cash flow from operating activities	187,585	112,570	110,176
Net change in non-cash operating working capital balances	6,410	(30,938)	18,334
Cash provided by operating activities	193,995	81,632	128,510
Financing activities			
Bank loan	(102,546)	83,470	14,216

Distributions paid	(127,325)	(85,218)	(126,883)
Redemption of exchangeable shares	(2,792)	-	-
Capital lease repayments	(9,305)	(11,366)	(2,629)
Issuance of trust units (Note 8)	214,002	55,821	161,409
Advances to affiliates (Note 4)	-	948	-
Cash provided by (used in) financing activities	(27,966)	43,655	46,113
Investing activities			
Reclamation and abandonment reserve (Note 7)	(776)	(706)	(447)
Acquisition of property interests	(186,956)	(158,516)	(177,729)
Proceeds on disposition of properties	33,466	30,019	3,736
Cash acquired on acquisition (Note 3b)	-	427	-
Internalization of management contract (Note 9)	(8,009)	-	-
Cash used in investing activities	(162,275)	(128,776)	(174,440)
Net change in cash	3,754	(3,489)	183
Cash (bank overdraft), beginning of year	(1,572)	1,917	1,734
Cash (bank overdraft), end of year	\$ 2,182	\$ (1,572)	\$ 1,917
Interest paid during the year	\$ 8,885	\$ 8,016	\$ 7,806
Income taxes paid during the year	\$ 842	\$ 1,281	\$ 1,065

The accompanying notes to consolidated financial statements are an integral part of these consolidated statements.

Notes to consolidated financial statements  
December 31, 2003, 2002 and 2001 (Unaudited)  
1. ORGANIZATION

Petrofund Energy Trust ("Petrofund" or the "Trust") is an open-ended investment trust created under the laws of the Province of Ontario pursuant to a trust indenture, as amended from time to time (the "Trust Indenture"), between Petrofund Corp. ("PC") and Computershare Trust Company of Canada (the "Trustee"). Active operations commenced March 3, 1989. The beneficiaries of the Trust are the holders of the trust units ("Unitholders").

PC, a wholly-owned subsidiary of the Trust, acquires oil and gas properties for its own account and sells a royalty interest (the "Royalty") to the Trust. The Royalty acquired from PC effectively transfers substantially all of the economic interest in the oil and gas properties to the Trust. The Trust is entitled to 99% of the production revenue from properties purchased by PC, less operating costs, general and administrative expenses, management fees (prior to 2003), debt service charges (including principal and interest) and taxes payable by PC.

## 2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The consolidated financial statements have been prepared by the management of PC following Canadian generally accepted accounting principles. The preparation of financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosures of contingencies at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimated. The following significant accounting policies are presented to assist the reader in evaluating these consolidated financial statements.

(a) Basis of consolidation

The consolidated financial statements include the accounts of the Trust and its wholly-owned subsidiaries, PC, 1518274 Ontario Ltd., NCE Management Services Inc. ("NMSI"), which employed all of the personnel who provided services to the Trust, and NCE Petrofund Management Corp. ("NCEP Management", the "Previous Manager") collectively, the "Subsidiaries". NMSI and NCEP Management were acquired to effect the internalization of management and the shares of 1518274 Ontario Limited are exchangeable into trust units. (See Notes 9 and 10)

(b) Oil and gas royalty and property interests

Oil and gas royalty and property interests are accounted for using the full cost method of accounting whereby all costs of acquiring oil and gas royalty and property interests and equipment are capitalized. General and administrative costs and interest are not capitalized.

The provision for depletion and depreciation and the provision for site reclamation and abandonment costs are computed using the unit-of-production method based on the estimated gross proved oil and gas reserves. Proceeds on sale or disposition of oil and gas royalty and property interests are credited to oil and gas royalty and property interests, unless this results in a change in the depletion and depreciation rate by 20% or more, in which case a gain or loss is recognized in the consolidated statement of operations. The provision for reclamation and abandonment costs is accumulated as a long-term liability, which is reduced as actual expenditures are made.

The carrying value of the oil and gas royalty and property interests, net of accumulated depletion and depreciation, accrued reclamation and abandonment costs and future income taxes is limited to an amount equal to the estimated future net revenue, net of production-related general and administrative costs, reclamation and abandonment costs, and income taxes. Future net revenue was calculated using yearend oil and gas prices and costs.

Effective January 1, 2004, the carrying value of the oil and gas royalty and property interests is limited to their fair value determined by the expected discounted future revenue from the properties.

Distributions payable to Unitholders

Distributions payable to Unitholders are equal to amounts received or receivable by the Trust on the cash distribution date. Income earned, but not received, is distributed on the cash distribution date following receipt.

(c) Future income taxes

The Trust follows the liability method of accounting for income taxes. Under this method, income tax liabilities and assets are recognized for the estimated tax consequences attributable to differences between the amounts reported in the financial statements of the Subsidiaries and their respective tax bases, using enacted income tax rates. The effect of a change in income tax rates on future tax liabilities and assets is recognized in income in the period in which the change occurs. Temporary differences arising on acquisitions result in future income tax assets or liabilities.

The Trust is a taxable entity under the Income Tax Act (Canada) and is taxable only on income that is not distributed or distributable to the Unitholders. As the Trust distributes all of its taxable income to the Unitholders and meets the requirements of the Income Tax Act (Canada) applicable to the Trust, no provision for future income taxes in the Trust has been made.

(d) Net income per trust unit

Basic net income per trust unit is computed by dividing net income by the weighted average number of trust units outstanding for the period. Diluted per unit amounts reflect the potential dilution that would occur if options to issue trust units were exercised and trust units were issued. The treasury stock method is used to determine the effect of dilutive instruments.

(e) Hedging activity



The Trust uses derivative instruments to reduce its exposure to commodity price fluctuations. Gains and losses on contracts, all of which constitute effective hedges, are deferred and recognized as a component of the price of the related transaction.

(g) Trust unit incentive plan

A Trust Unit Incentive Plan (the "Unit Incentive Plan") was established authorizing the issuance of options to acquire Trust units to directors, senior officers, employees and consultants of NCEP, Management, NCE Petrofund Advisory Corp., NMSI and certain other related parties, all of whom are deemed to be employees of the Trust. No options have been issued since 2002.

The Trust has elected to prospectively adopt amendments to the recommendations of the CICA on accounting for stock based compensation in accordance with the transitional provisions contained therein. Under the amended recommendations, the Trust must account for compensation expense based on the fair value of the options at the grant date. As the Trust has not granted any options since December 31, 2002, this change in accounting policy has no impact on the consolidated financial statements. For options granted in 2002 the Trust elected to continue accounting for compensation expense based on the intrinsic value of the options at the grant date and disclose pro forma net income and pro forma net income per Trust unit as if the fair value method had been adopted retroactively. The exercise price of options granted under the Unit Incentive Plan may be reduced in future periods in accordance with the terms of the Unit Incentive Plan. The amount of the reduction cannot be reasonably determined as it is dependent upon a number of factors including, but not limited to, future prices received on the sale of oil and natural gas, future production of oil and gas, and the determination of the amount to be withheld from future distributions to fund capital expenditures. Therefore, it is not possible to determine a fair value for the options granted under the Unit Incentive Plan and compensation expense has been determined based on the excess of the unit price over the reduced exercise price at the date of the financial statements and recognized in income over the vesting period of the options with a corresponding increase or decrease in contributed surplus. After the options have vested, compensation expense is recognized in income in the period in which a change in the market price of the Trust units or the exercise of the options occurs. The compensation expense under this method in 2003 for the options issued in 2002 is \$ 2 million. Net income would have been reduced by this amount and net income per Trust unit would have decreased by \$0.03. For 2002, net income would have been reduced by \$60,000 with negligible impact on net income per Trust unit.

Consideration paid upon the exercise of the options together with any amount previously recognized in contributed surplus is recorded as an increase in unitholders' capital.

### 3. ACQUISITIONS

(a) Solaris Oil & Gas Inc.

On February 7, 2003, PC acquired 100% of the outstanding common shares of Solaris Oil & Gas Inc. for \$7.4 million in cash and assumed \$1.2 million of debt including negative working capital and the outstanding bank loan.

The acquisition was accounted for using the **purchase** method. A summary of the net **assets** acquired is as follows:

	\$000's
-----	-----
Working capital	\$ (813)
Oil and gas properties	13,219
Bank loan	(370)
Future income taxes	(4,676)
-----	-----
	\$ 7,360
-----	-----

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(b) NCE Energy Trust

On May 30, 2002, Petrofund Energy Trust acquired NCE Energy Trust for 0.2325 of a Trust unit for each Trust unit on a tax-free rollover basis. The value assigned to the Trust units of \$13.024 per unit issued on the acquisition was based on the average market value of the Trust units five days before and after the acquisition was announced.

The acquisition was accounted for using the **purchase** method. A summary of the net **assets** acquired is as follows:

	\$000's
Working capital	\$ (39,518)
Oil and gas properties	165,254
Future income taxes	(27,097)
	\$ 98,639

Prior to the acquisition, Petrofund advanced \$37.3 million to NCE Energy Trust to pay down the bank debt of NCE Energy Trust.

(c) Magin Energy Inc. ("Magin")

On June 25, 2001, PC acquired 93.6% of the outstanding common shares of Magin and on July 3, 2001 acquired the remaining shares. Magin was amalgamated into PC on July 3, 2001.

In total, PC acquired 38,338,535 Magin common shares for \$58.6 million in cash, 8.5 million trust units with a deemed value of \$18.56 per unit and the assumption of \$43.7 million of debt including negative working capital, the outstanding bank loan and capital leases. In addition, other transaction costs of \$11.8 million were incurred.

The acquisition was accounted for using the **purchase** method. A summary of the net **assets** acquired is as follows:

	\$000's
Working capital	\$ (4,749)
Oil and gas properties	381,043
Bank loan	(21,569)
Capital leases	(17,359)
Future income taxes	(109,790)
	\$ 227,576

4. RELATED PARTY TRANSACTIONS

(a) Management, advisory and administration agreement

PC, NCEP Management, the Previous Manager, and the Trust had entered into an agreement which was amended from time to time, whereby the Previous Manager was to provide management, advisory and administrative services to PC and the Trust. During 2002 the Previous Manager was paid a management fee equal to 3.25% of net operating income plus Alberta Royalty Credit (2001-3.75%). In addition the Previous Manager received an investment fee of 1.5% (1.75% prior to January 1, 2002) of the purchase cost of all properties purchased by PC other than replacement properties, and a disposition fee equal to 1.25% (1.5% prior to January 1, 2002) of the sale price of properties sold. During 2002, the Previous Manager received a management fee from PC of \$4.7 million (2001 - \$5.3 million). In addition, the Previous Manager received investment fees of \$1.3 million (2001 - \$5.2 million), which were capitalized as part of the acquisitions, and disposition fees of \$116,000 (2001 - \$3,000), which reduced the proceeds of disposition. No management fees have been charged directly to the Trust.

Due to the internalization of management, no fees were payable in

2003. (See Note 9)

Under the terms of the agreement, the Previous Manager was entitled to be reimbursed by PC for general and administrative expenses. In any year, PC was to reimburse the Previous Manager no less than \$240,000 and no more than 5% of gross production revenue for general and administrative expenses. To the extent that general and administrative expenses exceed 5% of gross production revenue, PC was entitled to set off and deduct the excess from its liability to pay management fees to the Previous Manager.

(b) Management agreement

The Previous Manager had entered into an agreement with NMSI to provide oil and gas investment, consulting, administrative and management services to PC. An officer and director of the Previous Manager is the sole beneficial shareholder of NMSI. During 2002 PC paid NMSI \$11.7 million (2001 - \$9.3 million) for accounting and administrative services, which is included in general and administrative expenses and \$838,000 (2001 - \$1.4 million) for project sourcing and evaluation services, which have been capitalized to oil and gas properties. In addition, PC reimbursed NMSI \$300,000 (2001 - \$600,000) for marketing and other related equity issue costs. No amounts for these services have been charged directly to the Trust. The amounts for general and administrative expenses paid to NMSI are subject to the same limitations noted for the Previous Manager in (a) above.

5. LONG-TERM DEBT

Under the loan agreements, PC has a revolving working capital operating facility of \$25 million and a syndicated facility of \$240 million. Interest on the working capital loan is at prime and interest on the syndicated facility varies with PC's debt to cash flow ratio from prime to prime plus 75 basis points or, at the Trust's option, banker's acceptances rates plus stamping fees. As at December 31, 2003, there was no amount outstanding under the working capital facility and \$110 million outstanding under the syndicated facility.

The revolving period on the syndicated facility ends on May 28, 2004, unless extended for a further 364 day period. In the event that the revolving bank line is not extended at the end of the 364 day revolving period, no payments are required to be made to non-extending lenders during the first year of the term period. However, Petrofund will be required to maintain certain minimum balances on deposit with the syndicate agent.

The limit of the syndicated facility is subject to adjustment from time to time to reflect changes in PC's asset base.

The credit facility is secured by a debenture in the amount of \$350 million pursuant to which a Canadian chartered bank (the "Lender"), as principal and as agent for the other lender, received a first ranking **security interest** on all of PC's assets.

The loan is the legal obligation of PC. While principal and interest payments are allowable deductions in the calculation of royalty income, the Unitholders have no direct liability to the bank or to PC should the assets securing the loan generate insufficient cash flow to repay the obligation.

Substantially all of the credit facility is financed with Bankers' Acceptances, resulting in a reduction in the stated bank loan interest rates.

6. CAPITAL LEASE OBLIGATIONS

The future minimum lease payments under the capital leases are as follows:

	\$000's
-----	-----
2004	\$ 423
2005	621
-----	-----
Total minimum lease payments	1,044
Less imputed interest at rates ranging from 7.37% to 8.425%	(80)
-----	-----

Obligation under capital leases	964
Current portion	(356)
<hr/>	
Long-term portion	\$ 608
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#### 7. RECLAMATION AND ABANDONMENT RESERVE

PC maintains a cash reserve to finance large and unusual oil and gas property reclamation and abandonment costs by withholding distributions accruing to Unitholders. At December 31, 2003, the cash reserve was \$3.8 million (2002 - \$3.0 million, 2001 - \$2.1 million). In 2003, PC increased the cash reserve by withholding \$776,000 (2002 - \$706,000, 2001 - \$447,000) from distributions accruing to Unitholders.

In addition, routine ongoing reclamation and abandonment costs of \$4.7 million in 2003 (2002 - \$2.2 million, 2001 - \$384,000) were incurred and deducted from distributions accruing to Unitholders.

#### 8. TRUST UNITS

Authorized: unlimited number of trust units	Number of Units	\$000's
<hr/>		
Issued		
December 31, 2000	21,914,079	\$ 321,344
Issued for cash	11,183,334	167,350
Issued for Magin acquisition	8,464,399	157,139
Commissions and issue costs	-	(11,781)
Options exercised	341,305	5,620
Unit purchase plan	13,279	220
<hr/>		
December 31, 2001	41,916,396	639,892
Issued for cash	4,600,000	59,800
Issued for NCE Energy acquisition	7,573,874	98,639
Commissions and issue costs	-	(4,190)
Options exercised	7,966	85
Unit purchase plan	10,184	126
<hr/>		
December 31, 2002	54,108,420	794,352
Issued for cash	15,800,000	204,440
Issued for internalization of management contact	100,244	1,123
Exchangeable shares converted	1,000,000	11,200
Commissions and issue costs	-	(11,001)
Options exercised	1,673,404	20,474
Unit purchase plan	6,509	89
<hr/>		
December 31, 2003	72,688,577	\$ 1,020,677
<hr/>		

The Trust has a Distribution Reinvestment and Unit Purchase Plan (the "Plan") for Canadian residents. Under the terms of the Plan, Unitholders can elect, firstly, to reinvest their cash distributions and obtain either newly issued units of the Trust directly from the Trust or previously issued units of the Trust purchased in the open market and, secondly, to purchase for cash newly issued units directly from the Trust.

For the years ended December 31,	2003	2002	2001
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Distributions reinvested to acquire previously issued units (000's)	\$ 4,095	\$ 3,387	\$ 6,979
Price per unit	\$ 13.20	\$ 12.15	\$ 16.61
Number of units acquired	310,276	278,797	420,100
Distributions reinvested to acquire newly issued units	\$ 89	\$ 126	\$ 220
Price per unit	\$ 13.65	\$ 12.36	\$ 16.59
Number of units acquired	6,509	10,184	13,279

The weighted average Trust units/exchangeable shares outstanding are as follows:

For the twelve months ended December 31,	2003	2002	2001
Basic	61,010,105	49,921,523	31,593,378
Diluted	61,153,027	49,967,648	31,635,976

Trust units/exchangeable shares:

For the years ended December 31,	2003	2002	2001
Trust units outstanding	72,688,577	54,108,420	41,916,396
Trust units issuable on exchangeable shares (Note 10)	939,147	-	-
	73,627,724	54,108,420	41,916,396

#### 9. INTERNALIZATION OF MANAGEMENT

On April 29, 2003, PC purchased 100% of the outstanding shares of NCEP Management, and NMSI. As a result of these transactions, all management acquisition and disposition fees payable to the Previous Manager were eliminated retroactive to January 1, 2003.

The total consideration paid was \$30.9 million as detailed below.

Total Consideration	\$000's
Issuance of 1,939,147 exchangeable shares to the shareholder of the Previous Manager	\$ 21,718
Cash payment to Trust for the repayment of indebtedness owing by the Previous Manager	3,400
Issuance of 100,244 units to executive management	1,123
Cash payment to executive management	780
Cash payment for distributions on exchangeable shares and trust units from January 1 to April 30, 2003	1,326
Transaction costs	2,503
Total Purchase Price	\$ 30,850

To ensure an orderly transition of the services that were provided by the Previous Manager through its offices in Toronto, PC entered into an agreement with Sentry Select Capital Corp. ("Sentry") to provide certain services to the Trust and PC until December 31, 2003, for a maximum cost of \$2 million. The amount incurred decreased from \$1 million in the first quarter of 2003 to \$500,000 in the second quarter and to \$250,000 in each of the third and fourth quarters. As of December 31, 2003, Sentry no longer

provides any services to Petrofund or to any of its subsidiaries. Sentry is a company in which John Driscoll, the Chairman of the Board of Directors of PC, owns a controlling interest.

Prior to the acquisition, the Previous Manager was paid a management fee equal to 3.25% of net operating income plus Alberta Royalty Credit, an investment fee equal to 1.50% of the purchase price of all properties purchased by PC and a disposition fee of 1.25% of properties sold, except replacement properties.

#### 10. EXCHANGEABLE SHARES

The number of Exchangeable Shares to be issued in connection with the internalization of the management contract was determined based on a negotiated value of \$12.17 per share as set out in the Information Circular dated March 10, 2003. For accounting purposes, the 1,939,147 Exchangeable Shares were deemed to be issued at a value of \$11.20 per share, being the average trading value of the Trust units for the last ten days prior to the closing date. Initially, each Exchangeable Share was exchangeable into one Trust Unit. The exchange ratio is adjusted from time to time to reflect the per unit distributions paid to unitholders after the closing date. Under the terms of the Exchangeable Share Agreement, the holder of the Exchangeable Shares is entitled to redeem for cash the number of shares equal to the cash distributions that would have been received had the Exchangeable Shares been converted to Trust units. As a result of the redemption feature, the number of Trust units issuable upon conversion is expected to remain constant over time. As the substance of this feature is to allow the holder of the Exchangeable Shares to receive cash distributions, the redemption has been accounted for as a distribution of earnings rather than a return of capital. In 2003, 181,041 Exchangeable Shares were redeemed for \$2.8 million in cash.

On December 17, 2003, 906,635 Exchangeable Shares were converted to 1,000,000 Trust units at a rate of 1.10298. At December 31, 2003, 851,471 Exchangeable Shares were outstanding, at an exchange ratio of 1.10298 per Trust Unit.

Issued and Outstanding	Number of Shares	\$000's
-----		
Issued for internalization of Management Contract	1,939,147	\$ 21,718
Redemption of Shares	(181,041)	-
Exchanged for Trust Units	(906,635)	(11,200)
-----		
Balance, December 31, 2003	851,471	10,518
Exchange ratio, end of period	1.10298	-
-----		
Trust Units issuable upon conversion	939,147	\$ 10,518
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#### 11. UNIT INCENTIVE PLAN

A total of 5,200,000 units have been reserved for issuance under the Unit Incentive Plan of which 2,254,100 have been issued as at December 31, 2003.

A summary of the status of the Unit Incentive Plan as of December 31, 2003, 2002 and 2001, and changes during the years then ended is presented below:

For the years ended December 31,	2003	2002	2001
-----			
	Weighted Average Exercise Units    Price	Weighted Average Exercise Units    Price	Weighted Average Exercise Units    Price
-----			

Options outstanding, beginning of year	3,028,280	\$13.21	1,840,190	\$15.92	941,278	\$16.71
Issued	-	-	1,468,100	10.65	1,477,800	17.65
Forfeited	(555,754)	16.82	(272,044)	16.66	(237,583)	18.38
Exercised	(1,673,404)	12.88	(7,966)	10.65	(341,305)	16.47

Options outstanding before reduction of exercise price	799,122	\$14.74	3,028,280	\$13.31	1,840,190	\$17.29
Reduction of exercise price	-	(1.81)	-	(0.10)	-	(1.37)

Options outstanding, end of year	799,122	\$12.93	3,028,280	\$13.21	1,840,190	\$15.92
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Options exercisable, end of year	440,656	\$15.36	1,593,681	\$14.10	745,565	\$16.08
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The options granted in 2002 and 2001 are exercisable at the original option prices, which were the market prices of the units on the date of the grants, or if so elected by the participant, at reduced prices as described below. The option prices are reduced for each calendar quarter ending after the date of the grant by the positive amount, if any, equal to the amount by which the aggregate distributions made by the Trust in any calendar quarter ending after the date of the grant exceed 2.5% of the oil and gas royalty and property interests on the Trust's consolidated balance sheet at the beginning of the applicable calendar quarter divided by the issued and outstanding units at the beginning of the applicable quarter.

The following table summarizes the options outstanding at December 31, 2003:

Number of Units	Exercise Price	Reduced Exercise Price	Expiry Date
4,689	\$ 15.00	N/A	May 8, 2005
280,666	\$ 19.35	\$ 16.23	January 30, 2006
109,067	\$ 17.25	\$ 14.78	April 4, 2006
21,800	\$ 14.71	\$ 13.31	July 20, 2006
382,900	\$ 10.65	\$ 9.93	July 25, 2007

#### 12. DISTRIBUTIONS ACCRUING TO UNITHOLDERS

Under the terms of the Trust Indenture, the Trust makes monthly distributions within a specified period following the end of each month ("Cash Distribution Date"). Distributions are equal to amounts received by the Trust on the Cash Distribution Date less permitted expenses. Distributions to Unitholders coincide with cash receipts of royalty income from PC. An overall analysis is as follows:

For the period ended	Cash Distribution Date	2003	2002	2001
November 30	January 31	\$ 0.15	\$ 0.15	\$ 0.42
December 31	February 28	0.16	0.15	0.42
January 31	March 31	0.17	0.13	0.42
February 28	April 30	0.17	0.13	0.42

March 31	May 31	0.18	0.14	0.45
April 30	June 30	0.18	0.14	0.45
May 31	July 31	0.18	0.14	0.36
June 30	August 31	0.18	0.14	0.32
July 31	September 30	0.18	0.14	0.25
August 31	October 31	0.18	0.15	0.25
September 30	November 30	0.18	0.15	0.25
October 31	December 31	0.18	0.15	0.23

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Cash Distributions per Trust unit	\$ 2.09	\$ 1.71	\$ 4.24
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Reconciliation of Distributions Accruing to Unitholders  
(thousands of dollars except per unit amounts)

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For the years ended December 31,	2003	2002	2001
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Distributions payable, beginning of year	\$ 30,065	\$ 12,188	\$ 28,425
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Distributions accruing during the year

Cash flow from operating activities	187,585	112,570	110,176
Redemption of exchangeable shares	(2,792)	-	-
Proceeds on disposition of property interests	-	946	3,546
Reclamation and abandonment reserve	(776)	(706)	(447)
Less capital lease repayment (2) (3)	(3,305)	(5,366)	(2,629)
Capital expenditures	(30,000)	(10,000)	-

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Total distributions accruing during the year	150,712	97,444	110,646
NCE Energy Trust cash flow (1)	-	5,651	-

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Total distributable income for the year	150,712	103,095	110,646
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Distributions paid	(127,325)	(85,218)	(126,883)
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Distributions payable, end of year(4)	\$ 53,452	\$ 30,065	\$ 12,188
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Distributions accruing to Unitholders  
per Trust unit

Basic	\$ 2.47	\$ 2.07	\$ 3.50
Diluted	\$ 2.46	\$ 2.06	\$ 3.49

(1) Remaining undistributed cash flow of NCE Energy Trust on May 30, 2002 (see Note 3b).

(2) Net of \$6 million refinanced by increased bank loan in 2002.

(3) Net of \$6 million refinanced by increased bank loan in 2003.

(4) It is expected that a portion of this amount will be used to fund capital expenditures.

### 13. FINANCIAL INSTRUMENTS

The Trust's financial instruments consist of cash, accounts receivable and payable, long-term debt, capital lease obligations and derivative instruments. As at December 31, 2003, the carrying value of the cash and accounts receivable and payable approximated their fair value due to their short-term nature. The carrying value of the long-term debt approximated its fair value due to the floating rate of interest charged under the facilities. The



carrying value of the capital lease obligations is not significantly different from their fair values.

The derivative instruments have no carrying value (**see** Note 14). The derivative instruments at December 31, 2003, had a negative fair value of \$6.8 million based on quotes provided by brokers. This fair value represents an approximation of amounts that would be paid to counterparties to settle these instruments at the balance sheet date. The Trust plans to hold all derivative instruments outstanding at December 31, 2003, to maturity.

#### 14. DERIVATIVE FINANCIAL INSTRUMENTS AND PHYSICAL CONTRACTS

The Trust enters into various pricing mechanisms to reduce price volatility and establish minimum prices for a portion of its oil and gas production. These include fixed-price contracts and the use of derivative financial instruments.

The outstanding derivative financial instruments, all of which constitute effective hedges, and the related unrealized gains or losses, and physical contracts as at December 31, 2003, are summarized separately below:

Natural Gas	Term	Volume mcf/d	Price \$/mcf	Delivery Point	Unrealized Gain (Loss) \$000's
Collar	November 1, 2003 to March 31, 2004	9,475	\$ 6.23- \$ 8.34	AECO	\$ 118
Collar	November 1, 2003 to March 31, 2004	9,475	\$ 5.80- \$10.98	AECO	164
Fixed	January 1, 2004 to March 31, 2004	4,737	\$ 6.07	AECO	(316)
Fixed	January 1, 2004 to March 31, 2004	4,737	\$ 6.23	AECO	(246)
Fixed	January 1, 2004 to March 31, 2004	4,737	\$ 6.81	AECO	18
Fixed	January 1, 2004 to March 31, 2004	4,737	\$ 7.39	AECO	255
Collar	April 1, 2004 to October 31, 2004	9,475	\$ 5.17- \$ 7.28	AECO	268
Collar	April 1, 2004 to October 31, 2004	9,475	\$ 5.07- \$ 6.81	AECO	(66)
Collar	April 1, 2004 to October 31, 2004	1,895	\$ 5.28- \$ 7.39	AECO	56
Fixed	April 1, 2004 to October 31, 2004	4,737	\$ 5.33	AECO	(550)
Collar	November 1, 2004 to March 31, 2005	9,475	(1)	AECO	54
Total					\$ (245)

(1) At Prices above \$8.97/mcf Petrofund receives \$8.97/mcf.

At Prices between \$5.80/mcf and \$8.97/mcf receives the market price.

At Prices below \$4.74/mcf Petrofund receives a premium of

\$1.06/mcf.

Oil	Term	Volume bbl/d	Price \$/bbl	Delivery Point	Unrealized Gain (Loss) \$000's
Fixed Price	January 1, 2004 to June 30, 2004	1,995	\$38.59	Edmonton	\$ (897)
Fixed Price	July 1, 2004 to December 31, 2004	668	\$36.41	Edmonton	(186)
Collar	January 1, 2004 to March 31, 2004	2,000	\$31.12- \$35.98	Edmonton	(999)
Three Way Collar	January 1, 2004 to June 30, 2004	2,000	(1)	Edmonton	(1,478)
Collar	April 1, 2004 to June 30, 2004	2,000	\$31.12- \$36.56	Edmonton	(768)
Three Way Collar	July 1, 2004 to December 31, 2004	2,000	(2)	Edmonton	(892)
Collar	July 1, 2004 to September 30, 2004	2,000	\$31.12- \$36.30	Edmonton	(591)
Collar	October 1, 2004 to December 31, 2004	2,000	\$31.12- \$36.30	Edmonton	(505)
Three Way Collar	January 1, 2005 to December 31, 2005	1,000	(3)	Edmonton	(516)
Total					\$ (6,832)

- (1) At Prices above \$37.27 Petrofund receives \$37.27/bbl.  
At Prices between \$31.12 and \$37.27/bbl Petrofund receives the market price.  
At Prices below \$27.55 Petrofund receives a premium of \$3.89/bbl.
- (2) At Prices above \$37.60 Petrofund receives \$37.60/bbl.  
At Prices between \$31.45 and \$37.60/bbl Petrofund receives the market price.  
At Prices below \$27.87 Petrofund receives a premium of \$3.89/bbl.
- (3) At Prices above \$37.60 Petrofund receives \$37.60/bbl.  
At Prices between \$31.12 and \$37.60/bbl Petrofund receives the market price.  
At Prices below \$25.93 Petrofund receives a premium of \$5.19/bbl.

All the oil hedges are at U.S. WTI prices and have been converted to Canadian dollars at the year end exchange rate of \$1.2965 C\$:US\$.

Electricity	Term	Volume MW/h	Price \$/MWh	Delivery Point	Unrealized Gain (Loss) \$000's
Fixed Price	January 1, 2004 to December 31, 2005	3.0	\$ 44.50	Alberta Power Pool	\$ 303

The gains or losses are recognized on a monthly basis over the terms

of the contracts and adjust the prices received.

Derivative financial instruments and physical hedge contracts involve a degree of credit risk, which the Trust controls through the use of financially sound counterparties. Market risk relating to changes in value or settlement cost of the Trust's derivative financial instruments is essentially offset by gains or losses on the underlying physical sales.

15.

#### INCOME TAXES

(thousands of dollars except per unit amounts)

The future income tax liability (asset) includes the following temporary differences:

As at December 31,	2003	2002	2001
Oil and gas properties	\$ 77,005	\$ 119,825	\$ 106,961
Resource allowance	-	(2,980)	(2,961)
	\$ 77,005	\$ 116,845	\$ 104,000

The provision for current and future income taxes differs from the result which would be obtained by applying the combined federal and provincial statutory tax rates to income before income taxes. This difference results from the following:

As at December 31,	2003	2002	2001
Income before income tax provision	\$ 41,857	\$ 10,165	\$ 40,128
Income tax provision computed at statutory rates	\$ 17,052	\$ 4,294	\$ 17,304
Effect on income tax of:			
Income attributed to the Trust	(41,468)	(24,435)	(32,665)
Internalization of management contract	12,568	-	-
Non-deductible crown charges, net of Alberta Royalty Credit	24,190	17,055	19,276
Resource allowance	(20,730)	(15,045)	(16,661)
Capital taxes	1,000	831	1,130
Income tax rate reductions on opening balances	(36,688)	-	(329)
Temporary differences in resource allowance	-	(19)	(2,427)
Other	129	3,105	512
Provision for (recovery of) income taxes	\$ (43,947)	\$ (14,214)	\$ (13,860)

The petroleum and natural gas properties and facilities owned by the Subsidiaries have a tax basis of \$232.7 million (\$212 million - 2002, \$153.3 million - 2001) available for future use as deductions from taxable income. Included in this tax basis are non-capital loss carry forwards of \$43.6 million (\$34.0 million - 2002, \$33.6 million - 2001), which could expire in various years through 2010.

#### 16. NET INCOME PER TRUST UNIT

Basic per unit calculations are based on the weighted average number of Trust units and exchangeable shares outstanding. Diluted calculations include additional Trust units for the dilutive impact of options. There were no adjustments to net income in calculating diluted per Trust unit amounts.

The weighted average units/exchangeable shares outstanding are as follows:

For the twelve months ended December 31,	2003	2002	2001
Basic	61,010,105	49,921,523	31,593,378
Diluted	61,153,027	49,967,648	31,635,976

#### NON RESIDENT OWNERSHIP

As at January 30, 2004, based on information provided by our transfer agent, Petrofund estimates that non-resident ownership of the trust was approximately 64%.

#### RESERVES SUMMARY

Petrofund has received the results of an independent engineering evaluation of its oil and gas reserves conducted by Gilbert Laustsen Jung Associates Ltd. ("GLJ") effective December 31, 2003. This evaluation is prepared in accordance with National Instrument 51-101 Standards of Disclosure for Oil and Gas Activities (NI 51-101). This new instrument adopted by the Canadian Securities Administrators sets out standards of disclosure for oil and gas activities and mandates the application of evaluation standards defined in the Society of Petroleum Evaluation Engineers (SPEE) Canadian Oil and Gas Evaluation Handbook (COGEH). The information that follows has been derived from the GLJ evaluation.

In prior years the reserve category most often referenced was "Proved plus Risked Probable", also known as "Established". The new standard does not include this definition, however, the evaluation criteria in NI 51-101 make the new "Proved plus Probable" category reasonably comparable to the old Established category. Year over year comparisons will therefore be done using Established reserves from December 31, 2002 and Proved plus Probable reserves from December 31, 2003.

#### HIGHLIGHTS

These highlights are based on the forecast prices and costs evaluation.

- Proved plus Probable reserves are 102.7 million boe, an increase of 3% over last year.
- Acquisition and development activity added 20.3 million boe of company interest Proved plus Probable reserves replacing actual 2003 production 2 times.
- Disposition of non-core properties totaled 5 million boe of Company interest Proved plus Probable reserves.
- Technical revisions including adjustments for infill drilling reduced proved plus probable reserves by 1.3 million boe's, or approximately 1%.
- Reserve life index is 11.1 years.

#### RESERVE SUMMARY 2003

Summary of Oil and Gas Reserves as of December 31, 2003  
Based on Forecast Price and Costs

	Light and Medium Oil		Heavy Oil		Natural Gas	
	Gross (mbbls)	Net	Gross (mbbls)	Net	Gross (mmcf)	Net
PROVED						
Developed						
Producing	32,512	28,565	848	750	191,682	151,527
Developed						
Non-producing	276	260	0	0	6,071	4,616
Undeveloped	8,675	8,196	0	0	5,408	4,177

TOTAL PROVED	41,463	37,021	848	750	203,161	160,320
PROBABLE	10,889	9,458	203	182	45,605	36,114
TOTAL PROVED PLUS PROBABLE	52,352	46,479	1,051	932	248,766	196,434

	Natural Gas Liquids		Total BOE's	
	Gross (mbbls)	Net	Gross (mboes)	Net
PROVED				
Developed				
Producing	5,060	3,577	70,367	58,146
Developed				
Non-producing	154	112	1,442	1,142
Undeveloped	377	258	9,953	9,150
TOTAL PROVED	5,591	3,947	81,762	68,438
PROBABLE	1,575	1,208	20,268	16,867
TOTAL PROVED PLUS PROBABLE	7,166	5,155	102,030	85,305

#### NET PRESENT VALUE SUMMARY 2003

Petrofund's reserves were evaluated using GLJ's price forecast effective January 1, 2004. The net present values shown below do not necessarily represent the fair market value of the reserves.

Net Present Value of Future Net Revenue Before Income Taxes  
At of December 31, 2003  
Based on Forecast Price and Costs

	Undiscounted (\$millions)	Discounted at the Rate of		
		10%	12%	15%
		(\$millions)		
PROVED				
Developed				
Producing	\$ 790.0	\$ 513.3	\$ 483.3	\$ 445.6
Developed				
Non-Producing	24.5	14.8	13.7	12.3
Undeveloped	110.9	36.6	29.6	21.4
TOTAL PROVED	925.3	564.7	526.5	479.3
PROBABLE	319.5	114.1	98.5	80.7
TOTAL PROVED PLUS PROBABLE	\$1,244.8	\$ 678.8	\$625.0	\$ 560.0

GLJ January 1, 2004 Price Forecast

Summary of Pricing Assumptions as of December 31, 2003  
Forecast Prices

Oil

Year	Oil WTI (US\$/bbl)	Edmonton Par (C\$/bbl)	Natural Gas AECO Spot (C\$/mmbtu)	Exchange Rate (\$US/\$Cdn)	Inflation (%)
2004	\$ 29.00	\$ 37.75	\$ 5.85	0.75	1.5
2005	26.00	33.75	5.15	0.75	1.5
2006	25.00	32.50	5.00	0.75	1.5
2007	25.00	32.50	5.00	0.75	1.5
2008	25.00	32.50	5.00	0.75	1.5
2009	25.00	32.50	5.00	0.75	1.5
2010	25.00	32.50	5.00	0.75	1.5
2011	25.00	32.50	5.00	0.75	1.5
2012	25.00	32.50	5.00	0.75	1.5
2013	25.00	32.50	5.00	0.75	1.5
2014	25.00	32.50	5.00	0.75	1.5

Note: Prices escalate 1.5% in 2015 and thereafter.

#### RESERVE RECONCILIATION

Reconciliation of Company Net Reserves  
Constant Prices and Costs

	Light and Medium Oil	Heavy Oil	Natural Gas	Natural Gas Liquids	Barrels of Oil Equivalent
-----					
	Net Proved				
	(mmbbls)	(mmbbls)	(bcf)	(mmbbls)	(mboe)
-----					
December 31, 2002	34,834	553	181	4,175	69,753
-----					
Extensions	159	—	1	30	332
Improved Recovery	681	—	—	11	757
Technical Revisions	(1,303)	318	(8)	(1,007)	(3,391)
Discoveries	79	—	—	—	79
Acquisitions	9,319	—	15	1,367	13,201
Dispositions	(2,186)	—	(2)	(13)	(2,537)
Economic Factors	(102)	—	1	17	11
Production	(3,689)	(121)	(23)	(545)	(8,248)
-----					
December 31, 2003	37,793	750	164	4,036	69,957
-----					
-----					
	Light and Medium Oil	Heavy Oil	Natural Gas	Natural Gas Liquids	Barrels of Oil Equivalent
-----					
	Net Proved plus Probable				
	(mmbbls)	(mmbbls)	(bcf)	(mmbbls)	(mboe)
-----					

December 31, 2002	41,592	593	213	4,937	82,602
Extensions	182	-	1	34	385
Improved Recovery	189	-	-	13	280
Technical Revisions	1,175	461	(6)	(713)	(27)
Discoveries	100	-	-	-	100
Acquisitions	11,667	-	17	1,496	16,020
Dispositions	(3,705)	-	(3)	(22)	(4,287)
Economic Factors	(39)	-	1	45	222
Production	(3,689)	(121)	(23)	(545)	(8,248)

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December 31, 2003	47,471	933	200	5,247	87,048
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Reconciliation of Total Company Interest Reserves  
Forecast Prices and Escalated Costs

	Light and Medium Oil	Heavy Oil	Natural Gas	Natural Gas Liquids	Barrels of Oil Equivalent
	(mmbbls)	(mmbbls)	(bcf)	(mmbbls)	(mboe)
December 31, 2002	38,014	826	233	5,925	83,633
Extensions	181	-	1	43	407
Improved Recovery	775	-	1	16	875
Technical Revisions	(1,062)	180	(15)	(1,567)	(4,918)
Discoveries	90	-	-	1	91
Acquisitions	10,636	-	19	2,002	15,771
Dispositions	(2,488)	-	(3)	(19)	(2,940)
Economic Factors	(168)	-	-	(6)	(240)
Production	(4,402)	(144)	(30)	(759)	(10,371)
December 31, 2003	41,577	861	205	5,637	82,309
	Light and Medium Oil	Heavy Oil	Natural Gas	Natural Gas Liquids	Barrels of Oil Equivalent
	(mmbbls)	(mmbbls)	(bcf)	(mmbbls)	(mboe)
December 31, 2002	45,689	1,012	274	6,998	99,399
Extensions	208	-	1	48	473
Improved Recovery	216	-	1	18	334
Technical Revisions	1,480	200	(11)	(1,208)	(1,325)

Discoveries	114	-	-	1	115
Acquisitions	13,614	-	22	2,166	19,363
Dispositions	(4,236)	-	(4)	(30)	(4,983)
Economic Factors	(195)	-	(1)	(11)	(306)
Production	(4,402)	(144)	(30)	(759)	(10,371)

December 31, 2003                      52,487      1,068              252      7,223              102,698

Note: Company working interest reserves includes royalty interest and Working interest.

Additional details regarding Petrofund's reserves information will be included in our Annual Information Form, which is anticipated to be available on our website and SEDAR by the end of March.

Petrofund Energy Trust is a Calgary based royalty trust that acquires and manages producing oil and gas properties in Western Canada. The Trust makes monthly cash distributions to unitholders, which are derived from the Trust's cash flow from these properties. Petrofund Energy Trust was founded in 1988 and was one of the first oil and gas royalty trusts in Canada.

This news release may include statements about expected future events and/or financial results that are forward-looking in nature and subject to risks and uncertainties. For those statements, we claim the protection of the safe harbor for forward-looking statements provisions contained in the U.S. Private Securities Litigation Reform Act of 1995. Petrofund Energy Trust cautions that actual performance will be affected by a number of factors, many of which are beyond its control. Future events and results may vary substantially from what Petrofund Energy Trust currently foresees. Discussion of the various factors that may affect future results is contained in Petrofund Energy Trust's recent filings with the Securities and Exchange Commission and Canadian securities regulatory authorities.

PETROFUND ENERGY TRUST  
Jeffery E. Errico  
President and Chief Executive Officer

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Fitch Rates Tricadia CDO 2003-1, Ltd.

Business Wire , p 5792

Jan 14 , 2004

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Business Editors

NEW YORK--(BUSINESS WIRE)--Jan. 14, 2004

Fitch Ratings assigns the following ratings to Tricadia CDO 2003-1, Ltd.:

-- \$76,500,000 class A-1LA **floating-rate**  
**notes** due February 2016  
    'AAA';  
-- \$8,500,000 class A-1LB **floating-rate**  
**notes** due February 2016  
    'AAA';  
-- \$85,000,000 class A-2L **floating-rate**  
**notes** due February 2016  
    'AAA';  
-- \$35,000,000 class A-3L **floating-rate**  
**notes** due February 2016  
    'AA';  
-- \$12,000,000 class A-4L **floating-rate**  
**notes** due February 2016  
    'A'.

The ratings are based upon the credit quality of the underlying assets and the credit enhancement provided to the capital structure through subordination and excess spread.

The rating of the class A-1LA A-1LB A-2L and A-3L notes addresses the likelihood that investors will receive full and timely payments of interest, as per the governing documents, as well as the stated balance of principal by the legal final maturity date. The rating of the class A-4L notes addresses the likelihood that investors will receive ultimate and compensating interest payments, as per the governing documents, as well as the stated balance of principal by the legal final maturity date.

The notes are supported by the cash flows of an asset portfolio consisting primarily of collateralized loan obligations with exposure to other cash flow collateralized **debt obligation** (CDO) sectors. The portfolio will maintain a weighted average rating factor (WARF) of approximately 'BBB/BBB-'. At closing approximately 80% of the **assets** were **purchased**.

As part of the rating process for this transaction, Fitch stressed the underlying **asset** portfolio with a variety of **default** and **interest** rate scenarios, designed to simulate varying economic conditions. For further details on the stress tests Fitch employed while rating Tricadia CDO 2003-1 Ltd., please refer to the presale report dated Dec. 8, 2003 on the Fitch Ratings web site at 'www.fitchratings.com'.

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The Integration of the Corporate Bond and Commercial Loan Markets\*

Lumpkin, Stephen A

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### Abstract:

This article looks at recent trends and developments in syndicated loan markets in the OECD area, focusing in particular on the growing integration of the corporate bond and syndicated loan markets. Syndicated loans have been around for centuries, but volume grew tremendously in the 1990s, especially in the US, where they accounted at times for over half of all new corporate financing. The growth in the market has been facilitated, in part, by the increased participation of institutional investors in the loan market. These traditional bond investors have brought something more of a "trading mentality" to the loan market. As a consequence, pricing in the bond and loan markets has become more closely aligned in recent years. The convergence between the two markets has implications for the pricing of business loans the management of credit risk. There is a potential for conflicts between the commercial banking and investment banking arms of integrated financial service providers, although most institutions take steps to limit the risk. (PUBLICATION ABSTRACT)

### Text:

#### I. Background

The process of syndicating loans dates back centuries, but volume grew tremendously in the 1990s, especially in the United States.<sup>15</sup> Prior to the early-1990s, big companies in search of bank financing used to rely primarily on a series of one-off (bilateral) loans arranged with several banks. Around that time, however, corporate borrowers began to find it more cost effective to pay agent banks to arrange, syndicate and administer loans. By mid-decade, pricing on these investment-grade and near-investment grade loans had become much more aggressive, with both up-front fees and utilisation fees declining toward their late-1980s lows in the midst of intense competition. Bank loan syndications have since remained a popular and important funding alternative for corporate borrowers, accounting in recent years for just over half of all new corporate financing. Leveraged borrowers, in particular, have been drawn to the syndications market, often favouring leveraged loans from banks over junk bond financing. Investors, meanwhile, have generally been attracted to the **floating rate** structure of most loan instruments, along with their senior secured status and, at times, their incremental yield pick-up over similarly **rated** unsecured assets.

This **note** looks at recent trends and developments in syndicated loan markets in the OECD area. The note focuses in particular on the growing integration of the corporate bond and syndicated loan markets. Academics have made great use for analytical purposes of the distinction

between the so-called "relationship lending" of banks and the "transactions lending" associated with bond markets. Some differences between the two types of lending remain. Commercial and industrial (C&I) loans at banks still tend to be freely callable, customised instruments with floating rates, characterised generally by a lack of uniformity in loan terms, structures, and prepayment patterns, while corporate bonds are relatively standardised fixed-rate, call-protected instruments. Nonetheless, in recent years these alternative sources of credit have become more closely linked from the perspective of both borrowers and lenders. Major issuers (borrowers) make use of both funding alternatives, banks engage in both types of lending, and traditional bond market investors such as insurance companies and pension funds increasingly participate in what are commonly considered to be "bank" syndicates. As a consequence, pricing in the bond and loan markets has become more closely aligned over the past few years. Going forward, the markets are likely to converge further to the extent that competitive pressures continue to result in the consolidation of financial service providers. In particular, combinations that put investment banks and commercial banks under one corporate roof, along with the full package of financial services that allows, would tend to encourage further integration of bond and loan markets. The convergence between the two markets has implications for the pricing of business loans and the role securities prices play as indicators of changes in creditworthiness. There is also a potential for conflicts of interest between the commercial banking and investment banking arms of integrated financial service providers, although most institutions take steps to limit the risk.

The discussion in this note is based in part on information obtained from interviews with selected market participants, which included representatives from specialised loan data service providers, credit rating agencies, major banks and investment banks. The analysis also partly reflects the discussion of the issue by the OECD Committee on Financial Markets. To this end, the note briefly reviews and supplements the evolving body of literature academic scholars and other researchers have produced concerning the syndicated loan market.

The evidence from the background interviews suggests that the degree of convergence between corporate bond and loan markets is highest for the leveraged (and distressed) market segments, owing mainly to the participation of institutional investors in both markets. More generally, technological advances, competitive pressures and the resultant mergers and acquisitions (M&As) in the financial services industry also have served as important catalysts for change. While all of these forces have been at work in most OECD jurisdictions, the growth and development of the secondary loan market has by most accounts been most pronounced in the United States, and it is in the US market where convergence between the bond and loan markets is most evident. Even so, the available evidence would seem to suggest for the most part that convergence between the bond and loan markets is far from complete. Full integration would seem to require further changes in the operating environment, including perhaps the ability to short-sell loans and, importantly, a more consistent accounting treatment (namely mark-to-market) across investor categories for loan investments.<sup>1</sup> Other impediments to full integration include the substantially longer settlement periods for loan trades compared to bond trades and the use of assignment fees for each loan trade.

The remainder of this note is structured as follows. Section 2 presents a brief comparison of loans and bonds as funding alternatives for corporate borrowers. In the process, this section also covers the distinction between various types of lending arrangements, ranging from relationship lending to capital market borrowing. A review of the syndicated loan market, where there are products that span the various lending arrangements and involve aspects of both commercial banking and investment banking is also provided.

Section 3 discusses the factors that have brought about increased convergence between the corporate bond and commercial loan markets. There are both demand and supply side factors, affecting both the primary and secondary markets. As a result of these developments, borrowers have been more willing to substitute between loans and bonds and investors have become willing to consider syndicated loans as substitutes for (or complements to) bonds in their debt portfolios. Section 4 looks at the current state of affairs in the corporate bond and C&I loan markets and discusses regional variations in the syndicated loan market and concludes with a discussion of the policy implications of recent developments.

## II. Loans and bonds: the borrower's choice between private versus public debt

### Differences in contract features

A company in search of external debt funds has two primary choices: borrow from financial institutions or raise funds directly in the capital markets.<sup>2</sup> Under normal market conditions, borrowers who raise money through the sale of securities would be expected to obtain lower financing costs than borrowers whose credit is intermediated by banks.<sup>3</sup> Regulators require depository institutions to provide a buffer layer of capital that is subordinate to the claims of depositors and other providers of low cost funds, and market forces compel banks to endeavour to maintain capital cushions above the regulatory minimum. This buffer layer of capital is relatively expensive. Ignoring transaction costs, a bank with market-rate funding would have to charge the borrower some 75-100 basis points attributable to capital requirements, in order to provide an adequate return on equity to its shareholders. In contrast, when a borrower obtains credit directly from the capital market, the investor who buys its bonds has willingly accepted the credit risk involved, so there is no need for that buffer layer of capital imposed on banks to protect the saver (i.e. depositor) on the other side of the transaction.

Other things equal, one might expect this cost differential to push high quality borrowers towards the capital markets and in many jurisdictions that has been the case historically. Capital market financing has typically been the choice for borrowers whose credit risk is relatively easy to assess and for which indirect monitoring mechanisms are adequate, while banks and related intermediaries have tended to specialise in lending to borrowers for which publicly available information about credit histories is lacking and in financing activities that are difficult to assess and contain a large measure of subjectivity. To survive in competitive markets, primary lenders must be able to distinguish better credit risks from poorer ones and set their loan terms accordingly. Banks, for example, are usually good at assessing credit quality in deciding whether or not to extend credit, but in addition to higher interest charges and other fees for risky borrowers, banks also use non-price terms to reduce the risk of default and mitigate other agency costs (Table 1).<sup>4</sup> Moreover, loans are senior in the obligor's capital structure (or at least are not typically subordinated to other debt) and are usually backed by good collateral, which results in higher recovery rates given default (Table 2). Banks also monitor borrowers on an ongoing basis. Firms with a proven track record fare better, since over the course of a long-term relationship banks may acquire information that helps to attenuate the information problems associated with certain lending activities, while de novo borrowers or other credits deemed to be riskier typically are subject to higher charges and more stringent non-price terms.

Table 1. General features of loans versus bonds

Table 2. Average debt prices as a percent of face value one month after

default

1982-2001

In the academic literature, lending arrangements of this sort, characterised by implicit long-term relationships between banks and firms, with close monitoring and re-negotiability of terms ("relationship lending"), are often contrasted with more arms-length lending arrangements in which institutions and individuals provide funds to firms via the purchase of publicly offered securities or where lending is based on other transactions-based criteria.<sup>5</sup> Financial systems in most developed economies will generally be characterised by a mix of both the bank-oriented and securities-oriented approaches, with relationships tending to become less important or, at least, less exclusive as firms become larger. With larger size typically comes greater name recognition, better reputation, etc., which tends to increase the funding options available to firms and, in turn, their incentives to diversify their funding sources.<sup>6</sup>

As noted before, bank loans tend to be relatively short term contracts, involve extensive covenants, and may be frequently amended, while public debt offerings tend to have longer terms to maturity, involve relatively loose covenants, if any, and are rarely, if ever, restructured.<sup>7</sup> A key result of the academic literature is that firms perceived as highly risky generally are not granted access to public capital markets and are forced to accept the tighter controls of private lenders.<sup>8</sup> In short, as borrowers become less "information problematic", the characteristics of their lenders and associated financing arrangements change.

#### Borrower's choice

A large literature has developed that examines a borrower's choice between bonds and loans as funding alternatives. Diamond (1991) develops a formal model in which borrowers switch their debt financings from financial intermediaries to public capital markets as the amount and quality of information about the borrowers' prospects improve and as they develop a solid "reputation" in the form of a history of successful debt repayments. In the framework of Carey et al. (1993), there is a continuum of funding choices over the life of a firm, ranging from insider finance through venture capital for start-ups, to bank loans, private placements and ultimately public debt markets as the firm's repayment record improves and as information about the firm becomes more readily available.

Another branch of the academic literature focuses on the role of relationships in attenuating agency and information problems in debt finance. When borrowers seek loans from the same bank over time, a repayment history accumulates and the lender forms an extensive information set based on multiple assessments of financial statements, detailed discussions with management, and perhaps renegotiations of loan terms. In this context, Berger and Udell (1995) find that interest rates and collateral requirements on lines of credit decline with the length of a bank-borrower relationship, while Petersen and Rajan (1994) provide evidence that a borrower's dependence on trade credit decreases with the length of a relationship. A general conclusion of this line of research is that borrowers will gravitate (or be steered) toward relationship loans when private information and agency costs are severe.

#### Lender's choice

The lender's choice between holding a loan in its portfolio or selling all or parts of the loan to other lenders in a syndication context has been studied separately. In the typology of Boot and Thakor (2000), at one end of the loan spectrum are relationship loans, which are based on information

specific to the borrower and privy to its bank. At the other end of the loan spectrum would be "transaction" loans, which are analogous to debt sold in the capital markets. Syndicated loans lie somewhere on the continuum between relationship loans and public debt borrowings and typically involve aspects of both kinds of financing arrangements. A syndicated loan is one that is provided by a group of lenders to a single borrower. The loan is structured, arranged, and managed much as in a relationship-type context by one or more commercial banks or investment banks, which act as "lead" banks or arrangers,<sup>9</sup> although all lenders are direct parties to the loan agreement. Arrangers also perform the "investment banking" function of finding investors to raise funds for the borrower.<sup>10</sup> Dennis and Mullineaux (2000) show that a loan is more likely to be syndicated as information about the borrower becomes more transparent, as the reputation of the syndicate's managing agent improves, and as the maturity of the loan increases. More generally, the decision to syndicate is a matter of strategic choice that also is affected by technology considerations, competition, regulation, demand and supply conditions and other factors.

#### Syndicated loan facilities

A key aspect of loan syndication decisions is the type of loan facility, which may depend in part on the relative bargaining power of the borrower and the lender(s). There are three basic types of syndications: underwritten deals, "best-efforts" deals, and "club deals". An underwritten deal is one for which the arrangers guarantee the entire commitment amount and then syndicate the loan. A best-efforts deal is one for which the arranger group commits to underwrite less than the entire amount of the loan, leaving the credit to the vicissitudes of the market. If the loan is undersubscribed, the credit may not close or may have to be altered to clear the market. Traditionally, best-efforts syndications were used only for risky borrowers or for complex transactions, but since the late-1990s best-efforts deals have become the norm even for investment-grade transactions. A club deal is a smaller loan (usually USD25 million to USD100 million, but possibly as high as USD150 million) that is pre-marketed to a group of relationship banks. The arranger is usually first among equals, and each lender gets a full cut, or nearly a full cut, of the fees.

With each type of facility, there may be different combinations of variable and fixed-term tranches. Transaction structures for loan syndications typically vary across loan market segments, across regions or by country of issuance, and within countries on a deal-by-deal basis. Using a very broad brush to describe syndicated loan structures, one can identify various revolving credit lines, term loans and letters of credit. A revolving credit line is the corporate loan equivalent of a credit card. It allows the borrower to draw down amounts on demand, repay them in various ways and then re-borrow up to the prescribed limit. The borrower is typically charged an annual commitment fee on unused amounts.<sup>11</sup> Syndicated loan facilities typically also include various types of term loans. A term loan is an instalment loan, which the borrower can draw upon during the commitment period and then repay either with a single bullet payment at maturity or with a scheduled series of repayments.<sup>13</sup> The final category includes letters of credit. The most common is a stand-by or financial letter of credit, which is simply a guarantee that the lender will provide support for various corporate activities.

The mix and relative size of loan instruments included in syndication structures will be tailored to accommodate demand by one or another of the major lender/investor constituencies. The three primary investor groups include banks (and increasingly, investment banks), finance companies, and institutional investors, a mix of hedge funds, high-yield bond funds,

pension funds, insurance companies, structured vehicles (collateralised loan obligations or CLOs and collateralised **debt obligations** or CDOs) and mutual funds. Banks tend to focus primarily on the so-called pro rata tranches, which comprise the revolving credit and amortising term loans, although there are some banks that buy institutional term loans. Finance companies participate most often in asset-based arrangements in smaller-sized leveraged deals. Institutional investors also generally choose different tranches than banks, most often fixed-rate term loans, loans with longer maturities and sometimes with different covenants. Given the differences in investor preferences, changes in the investor make-up over time can have major effects on syndicated loan structures and the pricing of loans, both directly and relative to bond prices. The next section looks more closely at factors affecting the linkage between the corporate bond and loan markets.

### III. Forces influencing the convergence between the corporate bond and C&I loan markets

As noted at the outset, the syndicated loan market accounts for a sizable share of total corporate funds raised. At a macro level, several well known developments have affected the growth in syndicated loan volume over the years and brought about major changes in the structure of loans and in the pricing of loan instruments. Of particular note are de-leveraging and the bursting of the 1980s asset-price bubble; Basel I and regulators' and shareholders' concerns about nonperforming loans and leveraged loans; the wave of financial sector M&As during the 1990s, in particular, those between commercial banks and investment banks; the importance and quantification of "return on relationship"; and institutional investors searching for yield.

#### Asset quality problems and other balance sheet pressures for banks

Many of the factors cited above are associated with balance sheet pressures of one form or another at commercial banks. Consider first problems with asset quality. The asset price bubble that developed in many advanced economies toward the late-1980s burst in the early 1990s resulting in many large-scale defaults. Banking sectors in a number of jurisdictions were affected, including Japan, the Nordic countries, the United Kingdom and the United States. About the same time, more precisely beginning in mid-1989 and continuing into 1990, the market for junk bonds in the United States collapsed with a number of large defaults, culminating in the well-publicised problems and eventual bankruptcy of Drexel Burnham Lambert, which had been the dominant underwriter in this market segment. The negative publicity surrounding the collapse of the junk bond market, along with the thrift crisis during the same time period, sensitised the public to the "risks" of junk bonds and other highly leveraged lending. Meanwhile, new guidelines for banks' capital adequacy were being adopted, according to which many institutions were undercapitalised. Banks, thus, faced concerns both from regulators and their own shareholders about the rise in non-performing assets, especially in their commercial loan and real estate portfolios. Stock prices for institutions with significant holdings of highly leveraged loans declined sharply. Those institutions that survived the fallout retrenched and endeavoured to unload non-performing loans and loans to highly leveraged entities. Few new transactions for below-investment grade credits were completed and, for some time, liquidity for leveraged credits effectively dried up. The market for leveraged credits eventually recovered but the amount of funds bank syndicates have given to any one leveraged borrower has since remained well below the all-time high of USD13 billion set in 1989, amounting to less than USD1 billion in 2002.<sup>13</sup>

The intense regulatory (and shareholder) scrutiny given in the late-1980s

and early 1990s to highly leveraged assets held on the balance sheets of banks was a major impetus behind the development of a secondary market for loans. Over the past several years, a number of other external factors, as well as banks' own desires to manage their loan books as portfolios, have further raised the incentives for banks to participate in secondary loan markets. As before, problems with asset quality and pressures to boost capital for regulatory purposes are important to note, while other factors include competitive pressures and the need to increase profitability, and risk management considerations.

#### Competitive pressures

Banks in many jurisdictions have come to appreciate the need to improve their competitiveness through more efficient management of their balance sheets. However, bank managers in many jurisdictions face a number of constraints in addressing the problem of low profitability. Perhaps the biggest constraint is the fact that the provision of credit can be a fiercely competitive business and what might seem to be the simplest option - widening margins - is not easily done, especially in the case of investment-grade loans.

As capital markets have expanded and become more liquid and efficient, the highest quality borrowers have turned increasingly to the commercial paper and bond markets in lieu of certain types of traditional bank (and insurance) products. In the process, margins for investment-grade loans have at times been squeezed to the point where the loans are no longer attractive on a stand-alone basis (relative to the risk) for perhaps all but the highest rated banks. For example, prior to the fallout associated with the Asian financial market crisis of the late-1990s, bank fees for investment-grade loans had been on a general downtrend since 1991 (Figure 1).<sup>14</sup> In the absence of any ancillary business to boost the return on the overall relationship, many institutions could no longer afford to book such loans, still meet capital requirements and provide an adequate return on equity to shareholders.

Figure 1. Investment grade loan pricing

In the late-1990s, this condition was particularly applicable to certain Japanese institutions and other capital-constrained banks, whose own funding premiums had risen well above levels at which they could profitably underwrite investment-grade loans. As a consequence, many capital-constrained institutions eventually were forced to put large portions of their syndicated loan portfolios up for sale and exit the international syndications business. This development had two effects. For one, the availability of a large volume of loans at favourable prices was another factor helping spur the growth and development of the secondary market for loans. Second, the withdrawal of a number of previously large lenders from the market, along with increased caution on the part of remaining lenders, generally combined to force borrowers to make some concessions as to pricing. The concessions typically took the form of higher up-front commitment fees and higher utilisation fees on drawn facilities. Still, while slightly higher fees have remained in place, for the most part, they do not add much to the yield on a multi-year investment-grade loan.

#### Risk management techniques

Banks in recent years certainly have had an incentive to free up regulatory capital allocated to low-margin corporate loans. In some cases, a bank will take a share of a loan syndication to maintain its relationship with the borrower, but subsequently will reduce its exposure either by unloading the loan itself or by passing on the associated credit risk (see Box 1). This



process has been facilitated by developments in risk management techniques. Since the late-1990s, most, if not all, large commercial banks have adopted risk management techniques that measure the returns of loans and other credit products. Although intended primarily for use in estimating the effect additional credit exposures would have on profitability and capital requirements for the lender's portfolio, risk management techniques also enable an institution to identify assets whose contribution to overall portfolio returns is low relative to the cost of the capital needed to support them, whether expressed in terms of the return-on-economic capital, the risk-adjusted return on capital, or some other yardstick.

Figure 2. Undrawn fees on 364-day and multi-year facilities

#### Box 1. Lenders' exposure and syndicated loans

Faced with low margins on high-grade corporate loans and lacking pricing power, major banks often seek to bundle the loan product with other business. In particular, revolving loans to high rated companies are often said to be priced as "loss leaders", that is, as a means of retaining access to other, more lucrative fee-driven business such as bond and equity underwriting engagements. For major wholesale banks, the attractiveness of the relationship lies in the potential basket of revenue sources rather than just the pure credit spread.

#### Financial sector consolidation

In a competitive environment in which financial services providers have been pressed to employ resources more effectively or seek other measures to improve performance, M&As have been a common strategic response (albeit more within than across national borders), as institutions have sought advantages from increased scale. Consolidation in the financial services industry has had both direct and indirect effects on the loan market. In the banking sector, consolidation has resulted in larger, but fewer, banks in most major banking jurisdictions. For the merged entities, investment-grade lending is not subject to constant returns to scale; that is, the volume of such loans a merged entity is willing to carry on its books is generally lower than the combined amount of its constituent banks' loan volume. That development, along with the closer attention paid by banks on the return on relationships with client firms has meant there are far fewer banks today lending to investment-grade corporations than just a few years ago. According to some market estimates, as recently as 1995, the typical investment-grade borrower's bank list would have boasted some 30 lenders. These days, that figure may have declined by half. Moreover, there is likely to be an investment bank or two or some other non-bank lenders on the "bank" list, institutions which tend to have more of a trading mentality.

In addition to the reduction in loan volume associated with banking sector consolidation, cross-sector mergers, especially those between banks and investment banks, have resulted in large entities more oriented toward fee-driven business than to straight portfolio lending. As these institutions have moved from originating loans to be held in their portfolios to originating loans and then collecting fees for structuring, distributing and servicing loan assets, the secondary market for commercial loans has grown and taken on many of the same characteristics of the corporate bond market. For commercial banks, it makes sense economically to move from the lower margin loan business to higher margin services. A countering move by investment banks into revolving credit lines would not be economically compelling on a stand-alone basis. However, a full-service shop might still feel compelled to do so to gain access to, or maintain, a valuable client relationship, and to provide the whole package of services in those rare cases (leveraged buyouts, acquisitions, etc.) when a borrower

might opt for a combination of loans and bonds in a single transaction - so-called one-stop financings.

#### Market conditions

The turbulence in financial markets in the late 1990s associated with the Asian financial crisis and the Russian debt crisis also brought about marked changes in lending arrangements. As noted previously in the discussion on competitive pressures, in the wake of the unsettled conditions in financial markets and heavy portfolio rebalancing by Asian banks, institutional fees and spreads for loan instruments reversed a declining trend that had begun toward the beginning of the decade. Not surprisingly, increases for lower-rated credits were greater, with fees and spreads climbing more than 100 basis points in some ratings categories. In the leveraged loan sector, many deals were either postponed or restructured with significant increases in spreads.

The developments affected more than just pricing premiums on new loan syndications, however. Some of the changes have been confined to specific jurisdictions while others are more broad based. Across OECD regions, Asia, where the crisis first began and where problems with nonperforming loans were pronounced, was the location for many notable structural changes in lending arrangements. In Japan, for example, a continued drop in bank lending in the wake of rising corporate bankruptcies and declining earnings prompted a number of higher rated corporate borrowers to turn to the bond market for funds. This development in itself was a major change for the Japanese corporate sector, which historically had relied predominantly on close banking relationships for external funds. The loan market in Japan changed in other ways as well. A few domestic banks began to offer for the first time standby liquidity facilities to high-rated corporate clients. Standby commitment lines had long been the standard arrangement in international lending markets, but in Japan, use of bilateral facilities was the norm, owing in part to difficulties regarding the legal treatment of up-front fees. In the wake of the market turmoil, however, with both banks and their corporate borrowers experiencing difficulties raising external funds, the advantages of standby commitment facilities became more compelling. For one, bilateral lending facilities, which typically involved loan amounts being held in a deposit account at the lending bank until needed by the borrower, required a risk weight of 100 per cent under capital adequacy guidelines, which was above that for undrawn commitment lines. Standby commitments had advantages over bilateral loans for borrowers as well. In particular, banks providing standby commitment lines were usually contractually obligated to provide the funds upon demand, while bilateral loans typically could be withdrawn at any time.

Japan was not the only jurisdiction to experience a change in bank lending practises as a consequence of the market turmoil. For emerging market borrowers, the use of flexible pricing and underwriting loan structures, whereby banks commit to lend the amount of funds requested but not at a specific price, became more widespread. This "flexibility clause" (or more simply "flex" in market parlance) was first applied by Chase Manhattan ostensibly as a means of preserving access by emerging market borrowers to the loan market during times of diminished liquidity, by allowing the lender to alter the terms of the loan contract as needed.

Prior to the adoption of market-flex language, arrangers of syndicated loans would take an initial read on the likely demand for a transaction, set the terms (fee, spread, etc.) deemed necessary to clear the market and then launch the deal. If market conditions changed dramatically prior to the close of syndication, the loan could be undersubscribed and arrangers could be left with larger-than-expected (or desired) allocations, since once the pricing terms were set, they were rarely changed. After the

Russian debt crisis, however, "flexibility clauses", which allow arrangers to increase (or decrease) the pricing of a loan and to shift amounts between various tranches of a loan according to investor demand, became a standard feature of loan commitment agreements.<sup>16</sup>

Although the flexibility clause was originally created for emerging market borrowers and other leveraged issuers, many banks began to use it for other segments of the loan market as well. As a consequence of widespread acceptance of the flex clause, "best-efforts" syndications have become the norm, even for investment-grade transactions. Generally speaking, the distinguishing feature now lies not in whether there is flexibility in the pricing, but in how much flexibility there is in the pricing. With unlimited flexibility, there is little difference between loan syndication and bond underwriting.

#### Institutional investors

The participation of institutional investors in the loan market has brought about a number of changes in the structure of loans. Institutional investors first began to participate in the loan market in meaningful numbers back in the mid-1990s. Faced with nominal interest rates that were at or near historical lows and flat term structures associated with declining inflation expectations, which offered little scope for yield pick-up by moving out along the maturity spectrum, many asset managers began to opt for alternative investments. The combination of floating-rates and senior secured status of loans made them an attractive alternative investment class and large numbers of traditional fixed-income and high-yield investors crossed over into the leveraged loan market to take advantage of the relatively higher LIBOR spreads on loans relative to those prevailing on junk bonds. Since that initial foray, institutional investors have become a mainstay of the market and in the past few years loan syndications have been structured and priced specifically with them in mind.

"Hybrid" loans are an example of a loan product that was designed specifically to appeal to investors who traditionally invested in higher yielding debt instruments. Hybrid loans offered investors features of both bonds and loans. They carried fewer covenants than traditional loans, but had higher yields as compensation. Like loans, hybrids were floating-rate instruments, could be amended easily and did not have to be registered. Like bonds, the average life was longer than for traditional loans and the collateral protection was looser. The various tranches of hybrid loans could be distinguished by how close the collateral protection was to those on traditional loans, which tend to be senior credits in an obligor's capital structure and are backed by better collateral - compared to bonds - which are unsecured. Hybrid products ranged from the so-called "covenant light" tranche, which was nearly identical to a traditional loan but lacked maintenance covenants, to senior unsecured and senior-subordinated tranches, which had the same creditor status as bonds in the obligor's capital structure.

Demand for hybrid products was strong prior to the onset of the financial crisis in 1997 and some deals that began with straight **floating-rate notes** were restructured to meet the demand of institutional investors. However, market turbulence in the wake of the Asian crisis and the Russian default prompted a flight to quality and an almost unprecedented preference for liquidity. In this environment, investors' appetites for both leveraged loans and high-yield bonds dropped sharply. Nonetheless, the participation of institutional investors in the loan market, in particular, in the leveraged sector had by that time become firmly established (Figure 3).

With the rise over time in the participation of institutional investors in the leveraged segment of the loan market, the share of syndicated leveraged credits sold to bank investors has declined, especially over the past few years. In the past, a typical leveraged loan would be structured to include a revolving credit, an amortising term loan, and one or more institutional tranches. However, banks have withdrawn from the market and institutional investors have come to play an ever-increasing role, these so-called pro rata tranches have been shrinking in size. Moreover, according to Loan Pricing Corporation (LPC), by early 2002, most leveraged loan syndications were being structured simply as revolving credits and institutional term loans, without an amortising term loan component. There are price effects as well. The marginal pricing on institutional term loans is now determined in the market according to the demand of institutional investors. The willingness of such investors to substitute between bonds and loans is beginning to affect the pricing on the pro rata bank tranches as well and has become an important force behind other structural changes in the market.

Figure 3. Global institutional investors in the syndicated loan market

#### IV. Recent developments in the syndicated loan market

On net, the various developments discussed above have served to make the pricing of syndicated loan instruments more market-tied. As a consequence, contract interest rate spreads on loan instruments generally have become more variable at origination, with bond and loan spreads showing a greater tendency to move together over time. This represents a marked change from the past when most, if not all, C&I loans were originated by banks at a standard mark-up over some cost-of-funds index and then sat either on the originating banks' own books or on the books of other bank investors until they matured, were rolled over, or defaulted. Nowadays, loans may be syndicated by investment banks or other non-bank institutions, institutional investors have become the dominant investors in certain segments of the loan market, and a secondary market in loans has developed, although opinions vary widely as to its liquidity.<sup>17</sup> That said, loan spreads do not adjust in tandem with changes in bond spreads, which suggests that the two markets are not fully integrated. To understand why, it is useful to bear in mind that the commercial loan market is not monolithic. Rather, there are various components and subcomponents, some of which are more closely aligned with their capital market counterparts than others.

##### Loan market segments

Traditional references to the syndicated loan business generally have segregated the market into two components - investment-grade loans and non-investment grade, or more commonly, leveraged loans, where the separation is determined largely according to the credit rating of the borrower. Generally speaking, investmentgrade loans are senior unsecured instruments with loosely drawn covenants that apply only in the case of material events. Leveraged loans, by contrast, tend to be senior secured instruments with tightly drawn maintenance covenants that are applied irrespective of whether any material change occurs. According to the traditional breakdown, loans would be considered "leveraged" when granted to borrowers whose credit ratings were below investment grade and whose LIBOR spreads were above a certain threshold.<sup>18</sup> Market participants suggest, however, that under current practices the market is not segmented precisely according to a borrower's credit rating. Rather, there are various sub-components defined loosely according to ratings and partly according to non-ratings-based criteria.

At one end of the spectrum is the high-grade end or upper tier of the

market, populated by loans (typically revolving lines of credit) to large companies that have credit ratings of A or better from the major rating agencies. Such lines of credit are used as back-up facilities for the issuers' commercial paper programmes or more commonly for working capital or general corporate purposes. These loans tend to be infrequently drawn and, then, mostly in times of distress. At the other end of the spectrum are leveraged loans, which can carry arranger fees of 1.5 per cent to 2.5 per cent, compared to high-grade loans which carry very low, if any, arranger fees. The current drawn spread threshold for leveraged loans is about 150 basis points or more over LIBOR. However, the current split between the leveraged and non-leveraged sub-components is not a one-to-one mapping based on the borrower's credit rating. Some borrowers with below-investment grade public debt ratings are able to borrow in the loan market at drawn spreads less than LIBOR +150 basis points, the current de facto demarcation point for leveraged loans. Also, many non-leveraged loans are extended to borrowers with credit ratings below single-A and that do not have commercial paper programmes, one of the primary uses for this type of credit. Thus, there appears to be a third segment of the large corporate loan market, a sort of middle ground that lies somewhere between high-grade loans and leveraged loans on the credit-quality spectrum. Somewhat separate segments also appear to exist within the leveraged loan market, based on which of the two primary syndicated lender constituencies is providing the credit: banks (domestic and foreign) versus institutional investors (primarily mutual funds and insurance companies), which focus on institutional term loans.

The secondary market for loans consists of two basic segments: a "par" loan market, which comprises loans trading around 90 per cent of par value, and all other loans, the so-called "distressed loan" market. As discussed further below, there are marked differences between these market segments.

#### Pricing loans in the primary market

##### The behaviour of investors

The investor side of the loan market comprises two dominant lender groups: banks and institutional investors. Though financial sector convergence has begun to blur some of the traditional demarcation lines between different categories of financial services providers, some clear differences in balance sheet structure remain, as reflected in the preferences for different types of loan investments. Banks (mainly commercial banks but increasingly securities firms as well) provide investment-grade loans, in particular, the large revolving credits that back commercial paper, support general corporate purposes or, in some cases, acquisitions. Loans funded by banks are generally senior and often are secured. They have short maturities (relative to bonds at least, with terms of five years or less the norm), are prepayable without material penalties, and are often amortising. For leveraged loans, banks typically provide unfunded revolving credits, letters of credit, and-though they are becoming increasingly less common-amortising term loans, under a syndication agreement. Banks are less inclined these days to hold leveraged credits on their books, so the leveraged sector tends to be dominated by institutional investors. Loans funded by institutional investors tend to have longer maturities than traditional bank tranches. They also tend to be non-amortising, with back-loaded principal repayments.

There are, of course, some banks that buy institutional term loans, however infrequently, and some institutional investors will on occasion buy portions of amortising term loans and, far less often, participate in revolving credits, but these are exceptions.<sup>19</sup> As well, some investors who buy B-term loans (or C-term, D-term, etc.) may buy a companion bond or other bond of the same issuer. However, the number of "crossover" investors

(those willing or able to buy both loans and bonds) is by most accounts still quite limited. A number of factors account for the limited number of cross-over investors. Many entities have charters that limit their participation to one or the other market. For example, a "prime rate" mutual fund<sup>20</sup> may have limited scope to invest in fixed-rate instruments like bonds, while structured vehicles like CDOs or collateralised bond obligations may have limited capacities for floating-rate loan investments. Continued specialisation along functional lines in financial services firms is also important. Although many financial institutions invest in both bonds and loans, the units that carry out these activities are rarely housed in the same department and might have very limited direct contact. Finally, all investors have limits on the volume of paper they are willing to hold. Thus, relative flows into bond-oriented versus loan-oriented investors can have an important effect on relative demand, and thereby on the structure of loan syndications.

Figure 4. Loan assets by fund type (USD billion)

In most cases, arrangers attempt to determine before a syndicate breaks the pool of likely investors and their desired allocations. To accommodate the syndicate lenders, the agent may shift amounts between pro rata tranches and institutional debt, or may make more radical changes to the structure. A change in the structure of leveraged loans that has evolved as demand from institutional investors has grown and as banks have withdrawn from the market is the decline in the size and number of pro rata tranches. Historically, leveraged loan structures would comprise a revolving credit, an amortising term loan and several institutional term loan tranches. However, by early 2002, most loans were structured without an amortising term loan component, and while the typical structure still included a revolver, it was usually a much smaller share of the overall package than would have been the norm in the past.

Legal restrictions also have a bearing on cross-market activity. Of particular importance in this regard is the stipulation that investors and traders who possess private information are not allowed to trade in the public bond market. Specific arrangements vary, but full-service shops all have some sort of "Chinese walls" to avoid transacting on the basis of private information. In general, market participants with access to private information are said to stay on the loan side of the wall, while those that cross between bonds and loans stick with public information. Trading desks attempt to support these efforts by determining upfront whether a given counterparty wants to see any of the non-public information that would be available to syndicate members. An investor wishing to trade both bonds and loans of the same issuer would be free to do so, but only by refusing access to the private information available to lenders in the loan market. Such an investor would therefore be at a competitive disadvantage compared to other loan investors that have access to the private information.

Market pricing fundamentals are affected by these differences across investor groups. In making investment decisions, banks have come to be motivated more by relationship profitability, while for institutional investors the focus tends to be more on loan-specific income and, hence, on market conditions. For these non-bank investors, relevant considerations include the credit quality of the obligor, liquidity, and the size of the transaction, especially in relation to demand. Relative value is also important and institutional investors are more inclined than banks to place a premium on the ability to trade (i.e., sell) loans. In attempting to assess relative value across markets, participants look at a range of information such as the pricing of the issuer's liabilities in the loan, bond, and derivatives markets, as well as the pricing of liabilities of comparable firms. A number of comparisons are possible including that between the loan rate and a swap equivalent bond rate, but participants do not appear to have explicit models for making these comparisons. At this

stage, given what can be observed about the actual practises of traders, the determination of relative value is not a purely mathematical exercise. Nonetheless, the focus by institutional investors on market fundamentals and relative value considerations makes pricing of institutional tranches of loan syndications more like the bond market, especially in the leveraged segment of the market where they are the dominant investors. Leveraged loan spreads are now determined not only by rating and leverage profile, but also by trading levels relative to par of an issuer's previous loans, and market sentiment tied to demand and supply. As a result, new-issue spreads rise and fall far more rapidly than in the past, when spreads were more or less the same for every leveraged transaction. In broad terms, the effect has been to increase market volatility with regard to trading and to make the pricing of primary market syndicated loans far more dynamic than in the past.

Pricing in the investment-grade segment is somewhat different, especially for revolving lines of credit. Given their focus on relationship profitability, major banks seek to bundle the loan product with other business and measure their success based on the return on the whole basket of services offered to the client firm. The income from these other revenue sources provides an offset to the low drawn spreads and undrawn commitment fees on high-grade lines of credit, which almost all participants agree are unprofitable on a stand-alone basis. Such lines of credit not only tie up scarce capital, but require extensive back-office operations for servicing. Major lenders concede, however, that participation in the revolver is often the price to be paid in order to gain (or retain) access to other more lucrative services with large, high-grade corporations. Thus, while participants generally agree that the pricing of high-grade revolving lines provides inadequate compensation for the costs and risks assumed, the pricing behaviour persists, with major investment banks generally being forced by competitive reasons to join commercial banks in funding such lines. Although a few bulge-bracket investment banks may be able to provide such lines directly, in some cases they have done so by acquiring commercial banks to provide the necessary liquidity.

The pricing of revolving lines of credit has been a point of contention among market participants, with commercial banks on one side and investment banks (traders in general) on the other. The divide puts institutional investors and other market participants that use mark-to-market accounting to value loan positions on one side, and commercial banks, which use historical cost accounting on the other. Not surprisingly, the arguments are often couched in terms of market values, with the non-banks contending that mark-to-market accounting creates more rational pricing of credit and sounder economic decisions. Thus, they are generally critical of the traditional bank approach to valuation, according to which upfront fees would be booked at par immediately, even for loans carrying below-market spreads. This approach would have the effect of causing the book and market values to diverge, even at origination. In the event of a bad credit outcome such as a default, banks would be inclined to continue to hold the loans in question until they had built up sufficient provisioning. Mark-to-market investors, by contrast, would attempt to sell the loans in question, since the book and market values would be the same. This tendency explains in part why trading volume for bonds of a given issuer tend to exceed the trading volume for comparable loans of the same issuer.

Major agent banks counter that much of the criticism directed at their valuation practices obscures the real problem the investment banks face. In their view, large corporate clients prefer to deal with an intermediary that can offer a full range of services, including bond and equity finance and importantly revolving lines of credit. Bankers assert that the problem with securities firms is, thus, that they lack sufficient capital to support this scale of lending, especially at the prevailing spreads. In the

leveraged loan segment, the problem is less severe as the spreads are deemed to be more reflective of the underlying risks. Major agent banks have nonetheless become more sensitive to relative value considerations and a few banks have adopted accounting practises that, while short of a full mark-to-market treatment, are more reflective of market values. In the case of upfront fees, for example, a few banks have begun to amortise the fees. By amortising the fees, the banks enable internal portfolio managers to sell such loans without having to recognise a book-value loss.

Pressures are gradually accumulating that may eventually wring further concessions from borrowers in the high-grade loan market. In particular, the number of lenders continues to decline. Small to mid-size banks continue to exit the market, as they lack the full range of products and services needed to make a lending relationship with high-grade companies profitable. As the number of fringe lenders declines, there is greater pressure on the remaining "club" banks to absorb a larger share of the revolving lines. With fewer lenders to share the burden, borrowers can more readily bump into capacity constraints such as loan-to-one-borrower limits, industry concentrations, etc. Moreover, for reasons discussed below, the secondary market for such loans is not especially deep and liquid, so lenders more or less must either hold on to loans or pass them on at significant discounts to par. Thus, many lenders are not inclined to increase their allocations.

#### The behaviour of borrowers

Lenders may have limited scope to improve the pricing on loans to high-grade corporations, however, since if loans become too expensive relative to alternative sources of funding such as bonds the companies can switch. For large corporate borrowers contemplating a financing, relative pricing across markets is an important consideration. When considering various financing options, prospective issuers will receive information from their agent bank/or investment bank regarding the pricing of their existing liabilities in the loan, bond and derivatives markets, as well as the prevailing prices of liabilities of comparable credits. Prospective borrowers are said to be sensitive to any relative price differences, although they do not shift automatically between bonds and loans according to which option is currently cheaper. Rather, issuers are more apt to respond to longer lived price differentials. Differences in capacity (relative demand) across markets are other important determinants of the financing choice, as are non-price terms of alternative debt arrangements, i.e., amortisation, call features, and term to maturity.<sup>21</sup> For example, firms expecting to have ample free cash on hand in the near term would gravitate toward loans, which would afford them the option of using the incoming cash to retire the credit early without penalty. Conversely, firms expecting their cash positions to be tight in the near term would be more inclined to opt for bonds, in order to delay repayments of principal. Of course, firms that are bumping into investors' constraints in either market would tend to lean to the other financing alternative in order to preserve existing capacity or to create additional borrowing room down the road.

#### The secondary market for loans

The secondary market for loans continues to evolve, though it is perhaps not especially liquid. In volume, the primary loan market is roughly USD1 trillion, ten times the size of the secondary loan market (almost the exact opposite of the proportions that prevail in the bond market). Most trading (selling really) occurs just after a loan is closed and allocated, when syndicate members adjust their holdings to achieve their desired allocation, which can differ from their awarded amounts. Sales typically are structured either as assignments (the usual case) or as participations and are conducted through dealer desks at the large agent banks. Trading desks increasingly make markets in loans for which their institution was



the lead bank, posting live bid and offer prices. This behaviour is a major change from the practise of just a few years ago, when live bids and offers were rarely posted and trades consisted mostly of negotiated transactions between dealers in a limited number of large, leveraged loans.

Even today, most continuous trading activity occurs in large leveraged loans, although institutional term loans are actively traded around origination. Loans to high-grade borrowers (i.e. revolving credits) are almost completely illiquid and have become even less liquid over time as the ranks of potential investors (namely banks) have declined. Given the meagre spreads on the loans, they tend to sell, if at all, only at significant discounts to par. Although some syndicate banks that take a share of such loans at origination might be willing to unload their allocation even at a loss, the most likely buyers would be other members of the "club", who generally would not be inclined to increase their exposure to the borrower. Other impediments to active trading of loans, especially par loans, include the relatively long settlement period (T + 10 for par loans), the lack of standardised loan contract terms, and the use of assignment fees per transaction.

The market for distressed debt is perhaps the segment of the market in which bond and loan markets have become the most closely integrated. In particular, senior-unsecured and senior-subordinated loan facilities rank about the same as the equivalent bonds. In any event, for borrowers in the midst of bankruptcy any remaining differences between price and non-price terms largely disappear and the bonds and loan instruments are, for all intent and purposes, the same and tend to trade accordingly. Activity in this market segment has grown fairly rapidly in recent years, accounting for over 40 per cent of loan trading volume in 2002 (Figure 5).

#### Alternative methods of risk transfer

In some cases, a major impediment to active trading of loans has been the borrower's right to consent to the transfer. In many jurisdictions, a legal assignment generally requires that a notice of the assignment be given to the borrower, which must give its consent to the transfer.<sup>22</sup> The requirement to notify can be especially problematic in the case of loans to investment-grade borrowers, which generally have more bargaining power than lower grade borrowers. Many investment-grade borrowers are said to disapprove of their "relationship"<sup>23</sup> banks selling their loans and some refuse to consent to trades. There may be limits on the degree to which borrowers can block a transfer, but the refusal to consent can be a strong impediment to direct sales of loans. There are, however, alternative methods of risk transfer that enable a bank to transfer the economic risk of loans without disrupting its relationship with the borrower. In particular, three forms of credit derivatives – credit-linked notes, total return swaps, and credit default swaps enable an originating lender to transfer the economic risk of underlying loans to its counterparty, while bypassing the need for borrower notification, as the loan **assets** themselves remain on the originator's balance sheet.

Figure 5. Secondary loan trading volume – **Purchases** (USD billion)

#### Credit-linked notes

Credit-linked notes generally are tied to the performance of a specific number of borrowers. They can take many forms, which vary depending on the extent to which payments are reduced in the event of a pre-specified credit event. The notes generally amortise in tandem with the underlying loans, which ensures that all economic interest in the loans passes from the originator to the investor. Note holders are entitled to receive all

payments of interest and repayments of principal on the loans in question, but also bear the credit risk, as originators have only limited (if any) obligation to compensate investors for losses stemming from the specified credit event. Because all cash flows (and generally all credit risk) on the loans pass through to investors, credit-linked obligations can provide capital relief to originators under risk-based capital guidelines.

## Swaps

Another approach to transferring the economic risk of loans is the use of swaps that reference specific assets. There are two variants: total return swaps and credit default swaps. With a total return swap, the originator agrees to pass through to its counterparty the interest payments and any repayments of principal on a designated pool of loans, plus any interim net increase in the market value of the loans. In exchange, the counterparty makes regular payments tied to a given interest rate index, plus any net decrease in the market value of the loans between payment dates. On the occurrence of the specified credit event, the swap agreement terminates and a final payment is calculated.

Perhaps more relevant for the current discussion is the case in which the originating bank enters into a credit default swap with a counterparty. With credit default swaps, the originator arranges with a counterparty to make regular payments (usually based on the principal amount of a set of reference loans) in exchange for protection against a specified credit event, which need not actually relate to the reference asset; i.e., the credit default swap does not require a precise matching of cash flows. The credit event can be defined in a number of ways, but commonly refers to a default or failure to pay by one or more borrowers. If the specified event occurs, the counterparty makes a payment to the originator. The payment by the counterparty may equal the par amount of the loans less their market value, but may also take the form of a purchase price paid by the counterparty for the loans in question or some other fixed amount that may or may not equal the par amount of the loans. To the extent that the credit default swap requires the counterparty to pay the originator par less recovery value or par in exchange for the loans in the event of default, the credit default swap has the economic effect of replacing the originator's exposure to the underlying credits with an exposure to its counterparty.<sup>24</sup>

The growth in structured credit-backed and credit-linked obligations reflects greater liquidity in swap markets, which has made it easier for banks to meet internal credit risk targets for structured transactions, along with the continued development of credit risk quantification techniques, which are used to price and structure the transactions. However, these developments should not be taken to imply that the use of credit derivatives to hedge individual credit exposures is not without its shortcomings. For one, the credit **default** swap market is more developed for **investment**-grade leveraged loans. Some participants claim that even in the case of higher grade paper the market is "thin". Most trades are said to be only in the USD5 million to USD10 million range, and larger trades can be difficult, if not impossible, to execute, especially during times of stress. The same participants further assert that spreads on credit default swaps for a company under financial pressure tend to widen dramatically and tradable amounts shrink considerably.

Other participants view the credit **default** swap market more favourably. While acknowledging the limited applicability of these instruments to other than **investment**-grade credits, proponents argue that the credit **default** swap market is generally priced off senior unsecured bonds that, in theory, are *pari passu* with loans. Thus, they consider credit default swaps to be very useful in imputing a

value for existing bonds and loans and, thereby, in pricing new bond and loan instruments.

#### Securitisation

Banks can also hedge exposures to various borrowers and implement other risk-based portfolio rebalancing strategies using securitisation techniques.<sup>25</sup> By originating and then securitising loans, a bank is able to profit from its distribution capacity, raising the turnover rather than the volume of its assets. Moreover, if the bank acts as administrator for the securitisation, it receives a series of fee incomes rather than just one narrow interest spread.

There are various approaches to executing securitisation transactions, depending on whether the originator uses a special purpose vehicle (SPV) as part of the transaction. For highly rated originators, credit derivatives may be used to transfer the risk, while the loans themselves may stay on the originator's balance sheet. Another on-balance sheet approach relies on the use of sub-participations. Other approaches use the same basic technical platform, but combine the subparticipation structure with a declaration of trust to transfer the loans to a SPV. Rather than transfer the loans outright, the originator transfers the economic risk of the loans to the SPV, but otherwise remains the lender of record. The SPV, therefore, has an exposure to the originator, as it relies on the originator to pass through payments of interest and repayments of principal on the underlying loans. The SPV funds its acquisition of the right to payments on the loans (and the inherent credit risk) by issuing securities to third-party investors. For the bank originator/ sponsor, the benefits of securitisation transactions can include increased liquidity (cash is received for loans transferred to the SPV); risk reduction (some credit risk is assumed by other investors); fee income for servicing the loans; and a potential reduction in required capital for regulatory purposes. Regional variation in the syndicated loan market

In the views of the market participants interviewed as background for preparing this note, the developments as described above pertain mostly to the syndicated loan market in the United States. Although participants expressed slight differences of opinion regarding the current state of affairs in other regions, most participants were of the view that the secondary loan market in the United States is relatively more developed and consequently that the corporate bond and loan markets in the US have become more closely integrated than in other regions. Various structural factors help to explain the regional variation, including the degree to which economic activity is financed through the banking system versus the capital markets and remaining differences in legal, accounting and tax rules.

#### Relationship lending

Market-based finance has historically played a much greater role in the United States than in Continental Europe and Asia, where corporations generally have relied on close banking relationships for their working capital and strategic funding needs. For instance, in the mid-1990s banks supplied more than 70 per cent of corporate debt in Italy, Germany and France, compared with a share on the order of 22 per cent in the United States. The bank share in much of Asia was comparable to or even greater than in Continental Europe. Times are changing, however, and corporate bond markets have begun to grow, particularly in Europe after the adoption of the single currency, but banks are still the main source of external finance for many corporate borrowers in both Continental Europe and Asia.

In Asia, corporate bond markets are still considerably less developed than in the United States. Commercial banks are the dominant source of finance

for most companies, followed by equity markets and lastly corporate bonds. This ranking owes in part to the relatively higher proportion of small to medium-sized enterprises and family owned businesses among Asian companies. Such businesses are naturally inclined to favour the support of relationship lending, so banks do the bulk of the credit analysis. In addition, governments in the region historically had comfortable fiscal positions and, thus, had less need to borrow, so government bond markets were not especially well developed and lacked liquidity. A liquid government bond market may not be a strictly necessary condition for the corporate market to develop, at least not in the textbook sense, but in most cases it has served an important benchmark pricing function and, thus, has been one of the main precursors to the development of corporate markets.

The situation has changed somewhat over time. The financial crisis of the late-1990s was a major factor. Among the changes it engendered was a sharp pick-up in corporate bond issuance and initial public offerings. Moreover, with many banks in the region under severe capital pressures and given the virtual withdrawal of Japanese banks from international lending, the share of bank loans generally dropped. The turmoil also fostered some positive developments, however, such as an improvement in clearing and settlement systems and related infrastructure. Binding capital constraints at banks resulted in fairly rapid growth in loan syndications, although from rather low levels, and greater asset securitisation - trends that have continued to today. In some cases, the pick-up in securitisation has reflected explicit efforts on the part of governments to encourage the development of secondary markets. In Japan, for example, the Bank of Japan has begun to accept securitised instruments as collateral for loans. Last year, total offerings of securitised debt (including CDOs) in Japan exceeded straight corporate bond issues for the first time. There is considerable scope for increased growth of the corporate bond market, but evidence suggests that the initial steps have been taken and the strict reliance on relationship banking has begun to wane.

Banks have responded to the changed environment by becoming more active in other areas of financial services. For instance, in some countries, banks have become more active arrangers of bond issues. Others have changed the structure of their assets by lessening their dependence on loans and increasing their holdings of bonds and other capital market instruments. These developments aside, many banks in the region still seem content to originate and hold some corporate loans in portfolio, despite the relatively thin margins on the loans.

#### Risk management techniques

The financial crisis in the late-1990s prompted institutions in most jurisdictions to improve their risk management practises, particularly with regard to credit risk analysis. However, most interviewees expressed the view that the quantification of risk and return and use of advanced portfolio management techniques is more prevalent in the United States, particularly among commercial banks. As well, institutional investors and other non-banks have a much greater presence in the loan market in the United States. These entities bring with them the use of mark-to-market accounting and a trading and relative-value mentality, factors that have fostered the growth and development of the secondary market for loans, especially for below-investment grade loans, and increased the integration between the bond and loan markets. Structured vehicles (such as CLOs and CDOs) also have provided an important impetus to market integration in the United States. To be sure, these instruments have been issued in Asia and Continental Europe, but to a lesser degree than in the United States. Those structured vehicles that have been created have generally been balance sheet securitisations by banks. Third-party sponsors have been less active in these regions because of a lack of diversity of issuers in the corporate

bond and syndicated loan markets, which makes it difficult for sponsors to achieve the diversification targets required by credit rating agencies. Markets in Asia and Continental Europe lack the multiplicity of types of fixed-income products found in the United States, which gives traditional banking an advantage in these regions. The lack of critical mass has prevented the emergence of large and liquid markets in several fixed-rate segments. Added to these concerns are cross-country legal issues, such as national differences in the treatment of the collateral in the event of bankruptcy. The net effect of all these developments is that loans, once originated, generally have tended to remain on the books of banks.

#### Policy implications of the integration of bond and loan markets

The preceding discussion aside, the old tradition of holding corporate loans on balance sheet until they mature is no longer the norm for many bank lenders. Low margins in a low interest rate environment and a growing awareness of the need to deliver value to shareholders have been forces for change in banking markets across the OECD area. In the past, banks would have been reluctant to unload loans for fear of upsetting relationships with large corporate customers. However, these relationships are increasingly taking a back seat to improving profitability. Loan syndications have played at least a small part in the process.

While the general trend appears to be towards increased use of syndication methods, considerable regional variation in syndicated loan markets exist across the OECD area. Markets in Asia and Europe have begun to grow, but they remain somewhat underdeveloped in many respects compared to the market in the United States. Recent data in the international Finance Review placed the number of syndicated loan issues in the United States at 2,756 for 2002, compared with 654 issues in Japan and 295 in the United Kingdom. In addition to the smaller number of issues in Asia and Europe, loan syndications in these regions typically use different structures than those in the United States. For example, issuers in the former regions are more likely to negotiate with their "club" banks on a bilateral basis compared with their counterparts in the United States, where agent banks lead loan syndications largely on a "best-efforts" basis.<sup>26</sup> Moreover, loan markets in the United States are becoming more transactional in nature like bond markets, although this development applies more to leveraged loans than to high-grade loans. Tradable amounts are shrinking in size and secondary market activity is increasing for some categories of loans, and the loan and bond markets are becoming more closely linked.

Many of the trends and developments in the loan market are, in part, an outgrowth of the ongoing convergence of the financial services sector, which is lessening many of the practical differences between the banking and securities business and increasing the similarity between the balance sheet structures of these institutions. Securities firms are holding more loans and other less liquid assets, while bank assets are becoming more liquid as the rather strict reliance (in some jurisdictions) on banks as the means for transforming short-term, liquid funds into longer term loans gives way to more market-based financial intermediation. Fears that this process will erode the banking business itself may be overdone, since banks have successfully branched out to become more active participants in other areas such as the bond market, both as investors and arrangers. A number of policy questions do arise, however, as loan markets become more transactional in nature and as relatively more of the intermediation of credit or pricing of credit risk takes place in the market.

On the plus side, the spread of new financial instruments and techniques for managing credit risk contributes to a better pricing of credit risk, which helps to support the market. As well, the participation of securities firms and institutional investors as end-risk holders facilitates better

management of portfolio risk on the part of banking institutions and, in principle at least, supports a wider distribution of risk across entities. Assuming these institutional investors are themselves able to properly manage their credit risk, their participation in the market should be beneficial from a systemic standpoint. That said, there is nonetheless a potential for risks to become concentrated among a relatively small number of participants, which could give rise to systemic problems and, thus, bears watching by supervisors and regulators.

The management of credit risk is also a key consideration in the issue as to whether large integrated banking organisations are underpricing certain lines of credit in order to secure a larger bundle of services with client firms. The issue of transparency aside, a major concern is the proper measurement and treatment of all lines of credit in the context of portfolio risk. Loans that seem under-priced on a stand-alone basis might be properly accounted for in the management of overall portfolio risk. Of course, the converse may also be true in the sense that if correlations are not properly assessed, loans that seem correctly priced on a stand-alone basis might be mis-priced in relation to their contribution to overall portfolio risk. The key for policymakers is to ensure that institutions have in place a risk management system that is attuned to the institutions' particular risk profiles. This requirement applies not only to banking institutions but to whichever entities are holding the credit risk, including mono-line insurers, re-insurers, etc. The Solvency II requirements for insurers and proposed Basel II requirements for banks must be noted in this context.

Certainly one important aspect of proper risk controls concerns the handling of private information. In the case of integrated financial services providers, there must be a proper system of controls and rigorous compliance efforts to ensure that private information from the loan side of the business does not flow over any "Chinese walls" to reach staff involved in the trading function. More developed auditing systems may also be needed in this regard.

For businesses, a shift to more market-based intermediation of credit may have both costs and benefits. On the one hand, the development of the loan market to include non-bank participants helps to diversify funding choices for corporate borrowers. On the other hand, some borrowers may not be able to rely as much on the cushioning effects of relationship banking when market conditions are difficult. Relationship banks would likely be more inclined than third-party investors to temporarily absorb the adverse consequences of external shocks, by perhaps taking advantage of capital cushions and/or revaluing loans internally (through loan-loss provisions) rather than offloading the credit. As relationships give way to market-based intermediation of credit risk, borrowers would likely encounter more volatile pricing. As well, there is a non-trivial probability that the flow of credit could become more volatile during times of stress, at least for lesser tier credits.

For the system as a whole, these potential costs seem to be outweighed by the potential for better pricing of credit risk in general, with risks becoming more widely distributed across investors who understand the risks and are able to manage them appropriately.

\* This article was prepared by Stephen A. Lumpkin, Principal Economist in the Directorate for Financial, Fiscal and Enterprise Affairs. This article benefited from comments by members of the OECD Financial Markets Committee.

#### Notes

1. According to Gold Sheets Annual, a publication of US-based Loan Pricing

Corporation, broadly syndicated loan volume surpassed the USD1 trillion level in 1997, compared to just USD137 billion in 1987. Most syndicated loans in the late-1990s were employed largely for general corporate purposes and for debt refinancing, while in the 1980s the vast majority of syndicated financings were to fund mergers and acquisitions and leveraged buyouts. More recently, LPC reports that total syndicated lending dropped below the USD1 trillion mark in 2002 to USD969 billion, which was down from USD1.1 trillion the year before. The decline in total syndicated loan volume largely owes to a drop in the investment-grade component, which fell almost 30 per cent on the year.

2. This view was expressed by non-bank participants, with banks arguing that mark-to-market treatment of the loan book would cause banks to withdraw from providing credit to certain types of borrowers.

3. This choice represents a bit of an oversimplification, but it captures the bulk of external funds raised.

4. The cost advantage is not constant over time and may differ across markets as well.

5. There are three basic types of loan covenants: affirmative covenants, negative covenants, and financial covenants. Affirmative covenants require the borrower to comply with certain basis standards such as making timely payments of interest charges and fees, paying taxes, obeying applicable laws, etc. Negative covenants, conversely, proscribe certain activities, such as asset sales, acquisitions, debt issuance and other transactions that could prove detrimental to the lender(s). Compared to affirmative covenants, negative covenants are much more highly structured to meet the borrower's specific circumstances. In addition to these structural covenants, bank loans typically contain various financial covenants as well, which establish performance criteria the borrower must satisfy. Financial covenants may establish minimum levels for such measures as cash flow to debt service, liquidity, equity or tangible net worth, or set ceilings for leverage and levels of capital expenditures.

6. See Berlin and Loeys (1988), Berlin and Mester (1992), and Rajan and Winton (1995).

7. Large firms, in general, and investment-grade firms in particular have the greatest liberty to choose their capital structure. For top-tier credits, the capital structure will usually comprise commercial paper on the short end of the liability maturity spectrum with bonds on the long end. Bank loans may be added on a revolving or stand-by commitment basis for flexibility. Larger loans may be provided by a syndicate of banks, whereby a lead bank negotiates the initial terms of the commitment agreement on behalf of the others. All members of the syndicate generally must ratify any subsequent changes in the loan agreement, so from the perspective of the lenders, syndicated loans are somewhat more difficult to renegotiate than traditional loans and in this respect are more like bond financings. For more on this point, see the discussion in Berlin (1996).

8. See the discussion by Dennis and Mullineaux (2000).

9. These differences in individual contracts should not be overemphasised as an important aspect of loan contracts is that they are part of a broader contractual arrangement between the bank and borrower, which typically runs for a longer period of time than an individual loan contract.

10. In the case of smaller loans, there may be a single agent at the head of the syndicate.

11. In return for this service, the issuer pays the arranger a fee, which is higher the riskier the loan and the more complex the loan structure. High-grade issuers may pay little or no fee for a plain vanilla loan, while fees on loans to leveraged borrowers are much higher.

12. On revolving credits to investment-grade borrowers, a facility fee on the entire committed amount often replaces the commitment, but is assessed regardless of whether there have been any draw-downs against the line. In the case of revolving credit lines offered to leveraged borrowers, the size that may be drawn is often subject to a pre-specified formula that links borrowings to a certain percentage of collateral.

13. An amortising term loan (or A-term loan) is a term loan with a progressive repayment schedule that runs for a period up to six years. An institutional term loan (B-term, C-term or D-term loan) is a term loan facility targeted to non-bank institutional investors. Delayed-draw term loans are credits that may be drawn down within a specified period to **purchase specified assets** or equipment or in some cases to make acquisitions. Under these lines, repaid amounts may not be re-borrowed.

14. Gold Sheets, Loan Pricing Corporation.

15. The drawn component of a line of credit is typically priced as a mark-up over a market interest rate such as LIBOR; the mark-up reflects the risk of the loan. The undrawn commitment is priced too - borrowers typically pay an annual commitment fee for the undrawn component of a line of credit. A commitment fee is a fee paid to lenders on undrawn amounts, under a revolving credit or a term loan prior to draw-down.

16. In some cases, arrangers may agree to certain prescribed limits on the range in which the price may be adjusted, but in most cases investor reaction determines the degree of "flex".

17. In general, loan traders express the most positive views regarding the secondary market, claiming that liquidity is certainly adequate, especially in the leveraged loan segment, and is improving. Originators, by contrast, generally hold the view that the secondary market for investment-grade loans is highly illiquid compared with the leveraged loan market, which itself is not exactly the bastion of liquidity.

18. The demarcation point is not absolute, but rather, has varied over time. Historically, the leveraged loan market was based on a mark-up of 200 basis points or more. In the mid- to late-1990s, spreads on leveraged loans were in the range of 250 to 300 basis points over LIBOR. Currently, the threshold is on the order of 150 basis points.

19. It is not common for institutional investors to participate in revolvers, as the latter are drawn on an irregular basis and tend, therefore, to require more intensive back-office work.

20. The label survives from the early days when such funds were marketed to investors as vehicles whose returns would mimic the prime rate.

21. As noted before, loans are generally senior secured, amortising instruments, with short maturities and flexible prepayment options. Bonds, by contrast, are usually subordinated, have longer terms to maturity, are rarely callable and generally do not offer amortising repayment structures. 22. There may be limitations on the circumstances under which borrowers may rightfully withhold their consent to an assignment.

23. This reference is an alternative definition of relationship. In the finance literature, references to relationship lending are most often to a



close relationship between a borrower and its banker, whereby the banker acquires intimate knowledge about the firm and its prospects over the course of a long series of interactions. This use of relationship, which is common among banks, refers to the range of financial products the bank provides to a customer.

24. In practice, credit default swaps are used only to hedge loans to higher grade borrowers. In fact, some market participants remark that the only way to hedge leveraged credits is to sell them.

25. The methods used to execute loan securitisations vary according to whether or not the bank uses a special purpose vehicle (SPV) as part of the transaction. Direct loan securitisation via the use of credit derivatives occurs as described above under the discussion of swaps. Techniques for securitising loans using credit derivatives to transfer risk are used when the originator is highly rated, since the counterparty acquires an exposure to the lender. Another on-balance sheet approach is for the bank to offer sub-participations in an underlying pool of loans directly to investors, with the loan assets themselves remaining on the originator's books. The originator continues to administer the loans and there is no need to notify the underlying borrowers.

26. Some evidence suggests that the syndicated loan market is showing signs of becoming more concentrated along similar lines as in the United States. According to LPC, borrowers in Europe are inclined to deal with a small group of relationship banks for syndicated loans, offering them some ancillary fee-based business in exchange for low interest rates on the loans. Smaller banks that lack the range of services needed to benefit from these terms are tending to withdraw from the market, resulting in an increased share for the larger arrangers.

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NEW YORK--(BUSINESS WIRE)--Sept. 5, 2003

Coronado CDO, Ltd.'s and its co-issuer Coronado CDO Corp. (collectively referred to as the co-issuers) is **rated** by Fitch Ratings as follows:

-- \$377 million class A-1 floating **rate notes**  
'AAA';  
-- \$5 million class A-2 fixed **rate notes**  
'AAA';  
-- \$62 million class B-1 **floating rate**  
**notes** 'AA';  
-- \$15 million class B-2 **floating rate**  
**notes** 'AA';  
-- \$3.5 million class C-1 **floating rate**  
**notes** 'BBB';  
-- \$16.75 million class C-2 fixed **rate notes**  
'BBB'.

The ratings on the class A and B **notes** address the timely payment of interest and principal. The ratings on the class C address the ultimate payment of interest and principal. The notes have a legal final maturity of September 2038.

The ratings are based upon the capital structure of the transaction, the quality of the collateral, and the overcollateralization (OC) and **interest** coverage tests provided for within the **security** agreement. Additionally, the ratings address the experience and capabilities of Western Asset Management Company (Western **Asset**) as the collateral manager.

The proceeds of the notes will be used to **purchase** an investment portfolio consisting primarily of residential mortgage-backed securities (RMBS), commercial mortgage-backed securities (CMBS), asset-backed securities (ABS), corporate debt securities, and collateralized **debt obligations** (CDOs). Upon the breach of a coverage test as outlined in the security agreement, the notes will start the process of paying down principal sequentially, beginning with class A principal.

The collateral manager, Western **Asset**, will **purchase** all investments for the portfolio on behalf of the co-issuers, which are special purpose companies incorporated under the laws of the Cayman Islands and Delaware, respectively. As of June 2003, Western Asset had under \$126 billion of assets under its management, \$47 billion of which is structured products.

For more information, please refer to the deal report titled 'Coronado CDO', available on the Fitch Ratings web site at 'www.fitchratings.com'.

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**106/9/8 (Item 8 from file: 16)**

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**Fitch Ratings Downgrades Eastman Hill Funding I, Ltd.**

**Business Wire , p 5485**

**July 2 , 2003**

**Language: English Record Type: Fulltext**

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**Text:**

Business Editors

NEW YORK--(BUSINESS WIRE)--July 2, 2003

Fitch Ratings downgrades six classes of **notes** and the subordinate preference shares issued by Eastman Hill Funding I, Ltd., (Eastman Hill). The following rating actions are effective immediately:

- \$488,015,097 class A-1 **floating-rate**  
**notes** to 'AA' from 'AAA';
- \$9,531,545 class A-1 fixed-**rate** **notes** to 'AA' from 'AAA';
- \$497,546,642 class A-2 interest only fixed-**rate**  
**notes** to 'AA' from 'AAA';
- \$10,000,000 class A-3 **floating-rate**  
**notes** to 'BBB' from 'AA';
- \$25,743,389 class B-1 fixed-**rate** **notes** to 'B' from 'BBB';
- \$25,000,000 combination securities to 'CC' from 'BBB';
- \$17,875,000 subordinated preference shares to 'C' from 'B+'.

Eastman Hill is a collateralized **debt obligation** (CDO) supported by a pool of high yield corporate bonds (11.1%), investment grade corporate bonds (42.3%), loans (14.3%), and residential mortgage-backed securities (RMBS) (32.3%). The CDO is managed by Trust Company of the West (TCW). As part of the annual rating review process, Fitch has reviewed in detail the portfolio performance of Eastman Hill. Included in this review, Fitch discussed the current state of the portfolio with the asset manager and their portfolio management strategy going forward. In addition, Fitch conducted cash flow modeling utilizing various **default** timing and **interest** rate scenarios. As a result of this analysis, Fitch has determined that the original ratings assigned to the referenced notes no longer reflect the current risk to noteholders.

Eastman Hill has been failing its class A-1 and B-1 overcollateralization tests since November 2002, as measured by the monthly trustee reports. As of the report dated June 25, 2003, Eastman Hill's defaulted assets represented 3.5% of the \$570 million par portfolio amount and eligible investments. Assets rated 'CCC+' and below represented approximately 3.6%, of the portfolio collateral, excluding defaults. The deterioration of the portfolio's credit quality has resulted in a current

weighted average rating factor (WARF) of 22 versus a test level of 20.

Additionally, the interest rate swap agreement that is in place to hedge the mismatch between the predominantly fixed-rate collateral and floating-rate liabilities has impacted the performance of Eastman Hill. The current low interest rate environment causes a gap between the strike rate of the interest rate swap agreement and current LIBOR rates.

After discussing Eastman Hill with TCW, Fitch believes that the collateral manager is making efforts to improve the credit quality of the portfolio with **purchases** of higher quality **assets**.

TCW is actively monitoring the portfolio on a daily basis. Fitch will continue to monitor Eastman Hill closely to ensure accurate ratings.

Additional deal information and historical data are available on the Fitch Ratings web site at 'www.fitchratings.com'.

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**Risk implications of credit derivative instruments**

**Rizzi, J V**

**Commercial Lending Review v18n4 pp: 15**

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**Abstract:**

Credit derivatives have grown from less than \$200 billion in 1997 to more than \$2 trillion in 2002. Furthermore, they are projected to more than double by 2005 and represent the fastest-growing segment of the credit market. As with most new instruments, a full understanding of their risks is frequently missing. Concerns expressed by Warren Buffet and Fitch, for example, highlighting the problems with these rapidly growing, illiquid instruments have surfaced. They are correct that these complex instruments are opaque and difficult to value. Thus, they can produce unintended results including higher risk levels than the underlying cash market alternative. Nonetheless, properly handled, CDs represent a useful means of participating in the credit market. This article will outline a framework to understand the risk issues inherent in the widening use of such instruments.

**Text:**

Credit derivatives (CDs) have grown from less than \$200 billion in 1997 to

more than \$2 trillion in 2002. Furthermore, they are projected to more than double by 2005 and represent the fastest-growing segment of the credit market. Initially used by financial institutions from a risk and regulatory capital management perspective, they have developed into a new credit-risk-asset class. Credit-asset investors now can choose between the cash and derivative credit markets. In fact, many institutions prefer to acquire credit exposure in the derivatives markets than in the cash primary or secondary markets based on relative value, funding, and ease of execution considerations. This has improved both the liquidity and pricing efficiency of credit assets.

As with most new instruments, a full understanding of their risks is frequently missing. This leads to surprises when institutions find that they have assumed more or different types of risk than originally envisioned. Concerns expressed by Warren Buffet and Fitch, for example, highlighting the problems with these rapidly growing, illiquid instruments have surfaced. They are correct that these complex instruments are opaque and difficult to value, particularly since they trade in the volatile, unregulated over-the-counter market.<sup>1</sup> Thus, they can produce unintended results including higher risk levels than the underlying cash market alternative. The problem is magnified by concentration of derivative credit exposure in a small number of financial institutions. Nonetheless, properly handled, CDs represent a useful means of participating in the credit market. This article will outline a framework to understand the risk issues inherent in the widening use of such instruments.

## The Market Setting

### Setting

Demand growth in derivative credit assets is driven primarily by nonbank institutional investors seeking leveraged access to an underrepresented credit-asset class. These investors, hedge funds and insurance companies, have favored countercyclical debt over traditional equity investments. Since derivatives allow investors to separate funding from credit risk, they can present a more efficient means of acquiring credit risk than cash market debt instruments. Thus, banks seeking credit protection sellers to balance their portfolios against concentrations and deterioration by effectively shorting a credit have found an active market.

Banks have moved beyond risk management to using CDs to acquire and trade credit risk.<sup>2</sup> They compare the prices available in the cash, primary and secondary, markets with the derivatives market. Many syndicate banks view the derivatives market as a relative-value benchmark comparing the all-in loan spread plus expected ancillary relationship income with the derivative rate. Syndicators are responding to weak primary syndications for thinly priced relationship-type transactions by using the derivatives market to reduce excess concentrations. In effect, a form of synthetic syndication has developed. The originating institution retains the legal exposure and funding risk. It sells the credit risk to synthetic syndicate members through a CD. Consequently, the complementary CD market is enforcing cash market pricing discipline and increasing cash market liquidity as the markets become more closely linked.

In addition, banks have recognized the need for an active CD focus to serve the sell side and operate in the secondary cash market for both loans and bond credit assets. In essence, derivatives serve as a key, allowing structuring institutions to open the doors separating markets to achieve the best client execution. Many institutions have combined their cash and derivatives functions to trade or sell credit as an asset class and not just the underlying loans, bonds, or derivatives separately.

## Market

CDs are instruments whose value is derived from the performance of an underlying reference asset. The major instruments include total return swaps (TRS),<sup>3</sup> credit-linked notes (CLNs),<sup>4</sup> credit default swaps (CDS),<sup>5</sup> and collateralized **debt obligations** (CDOs).<sup>6</sup> Major participants include banks, dealers, insurance companies, money managers, and hedge funds. Recent extensions involve CD indices such as the European iBoxx, swaps, and options on indices. For purposes of this article, the focus is on the major instruments, CDS and CDOs.

Limited market liquidity makes credit derivative instruments difficult to value on a traditional market-to-market basis. Thus, a mark-to-model approach is frequently employed. This increases the level of accounting and valuation risk. Furthermore, market-making liquidity is highly concentrated in the top five institutions.<sup>7</sup> This leads to a potentially volatile market.

The transparency and liquidity issues, among others, complicate the evaluation of CD performance. Perceived credit-rating arbitrage opportunities, two similarly rated instruments trading at different prices, may involve unidentified risk factors rather than true arbitrages or relative-value advantages. This is reflected in the poor performance of many CD investors. A framework identifying risk factors, and determining whether the user has been appropriately compensated and protected, is needed. This requires an examination of collateral, structure, counterparties, and documentation.

### FIGURE 1

Risk Matrix

Risk Framework

### Principles

The conservation of risk principle highlights that risk never disappears. Rather, it either is transferred to another counterparty or is transformed.<sup>8</sup> Thus, it is important to focus on the type of risk and who retains it in complex derivative transactions (Figure 1). Frequently billed as reducing risk, many derivative credit exposures have unrecognized risks leading to unintended consequences.<sup>9</sup> Currently, CDs are billed as the modern approach to risk management and the preferred form of credit-risk exposure. This creates a herding effect by users who do not wish to be left behind in the search for yield or protection. These users are, however, subject to adverse selection. The user with the lowest risk estimate will have the highest concentrations in the instruments. This can be compounded by the difficulty in assessing high-impact, low-frequency events. Investors are frequently lulled into a false sense of security by overweighting recent events and underweighting unlikely possible exposures. In behavioral terms, this is known as disaster myopia and is responsible for many well-known failures, including Long Term Capital Management. Failure to distinguish a risk expectation, which is usually historically based from the larger scenario-dependent risk exposure, can lead to losses.<sup>10</sup>

The key principles are as follows:

- \* Never allow rare events to become fatal; avoid concentrations and excessive leverage.

- \* Limit the downside; understand the consequences of the downside as the upside will take care of itself.

- \* Understand the source of the return; determine whether the perceived excess return or risk transfer is real or merely due to some unmeasured

risk factor.

- \* Risk spreads reflect more than expected loss; liquidity and technical factors may overwhelm expected loss.

- \* Beware of survivorship bias; the record of successful CD users overstates their success rate as the unsuccessful efforts are ignored.

We will turn to an application of these principles to CDs.

#### Market Application

Application of these risk principles is complicated in the young, rapidly growing, illiquid CD markets. Being traded over the counter, they are customized and lack transparency. Next, both the investor base and liquidity providers are highly concentrated. Thus, pricing tends to be determined more by technical than fundamental factors making mark-to-market calculations problematic. Consequently, marking-to-model is often used to value CDs. The models, however, are data dependent.

FIGURE 2

#### Structure of a Credit Default Swap

Data problems complicate the pricing or valuation decision. Independent data are difficult to obtain in the over-the-counter market. It is frequently provided by the dealers themselves. Next, there is a relatively short history of data, as the instruments are relatively new. The data also are skewed by differing default definitions and credit mitigation issues.

Frequently, the result of these problems is mispriced risk. Many insurance companies that sold credit protection and investors who invested in subordinated CDO tranches, for example, have suffered disappointing returns due to mispricing. Furthermore, institutions like Credit Suisse have incurred large losses on credit default swaps (CDS) such as British Rail. This leads shareholders in CD market makers to extract an uncertainty discount reflected in lower price-earnings multiples for these firms. This situation should improve once pricing and disclosure becomes more transparent. This will require a move away from over-the-counter to exchange-traded derivatives, albeit with a loss of some flexibility. In addition to pricing and model risk, other risk issues to consider include the following:

- \* Credit risk: Risk of counterparty default and credit mitigation.

- \* Liquidity risk: Unexpected payouts and thin secondary market conditions can complicate meeting obligations at a reasonable price.

- \* Operational risk: Settlement deadlines and collateral monitoring errors can affect claims.

- \* Legal and documentation risk: Nonstandardized clauses may increase risk exposure and transaction costs.

- \* Regulatory risk: Involves the capital treatment of the exposure, which is heightened by planned Bank for International Settlements (BIS) II changes.

- \* Accounting risk: Income volatility from mark-to-market adjustments and balance-sheet consolidation issues, which are complicated by recent accounting changes such as International Accounting Standard No. 39.

Finally, credit derivatives can unexpectedly transfer tax benefits and



liabilities between the parties.

Adding to the problem is the separation of functions between the economic pricing and institutional risk factors. Those valuing the instruments frequently fail to understand the structuring implications of the complex legal, tax, accounting, and regulatory rules that motivate the transactions. Armed with this framework and market understanding, we will now examine in detail the major credit derivative tools, CDS and CDOs.

#### Credit Default Swaps

CDS are the dominant credit derivative instrument. Single-name CDS comprise almost one-half of the market. The typical mechanics of a CDS are illustrated in Figure 2. In a CDS, the protection buyer pays a fee for the right to receive a contingent payment from the protection seller following an agreed-upon credit event concerning a reference obligation over a given term. Terms can range up to 10 years with the five-year term being the most liquid. Notional amounts per contract usually range between \$5 million and \$10 million with up to \$100 million for more liquid **investment**-grade names possible.

FIGURE 3

#### Credit **Default** Swap Quotes April 23, 2003

The largest sellers are insurers and financial guarantors. Banks represent the largest buyers, although more banks are moving toward selling protection as an alternative credit-asset origination tool. According to Fitch, the five most cited reference entities are General Motors, Ford, Daimler Chrysler, General Electric, and France Telecom. Market and contract-specific information for the more liquid 100 to 250 reference entities is provided by major participants.

Figure 3 presents a sample of market prices provided by ABN AMRO, April 22, 2003, for autos and auto parts."

Quotes on less well followed entities are available on request. These quotes reflect both fundamental and comparable value factors. The major fundamental factors include the following:

- \* Maturity: Fees vary directly with maturity.
- \* Counterparty rating: Fees vary directly with counterparty rating.
- \* Probability of credit event: Depends on both the type of event and its frequency.
- \* Recovery following credit event: Reflects loss given credit event.
- \* Default correlation between counterparty and reference obligation: Lower correlations imply higher fees.
- \* Liquidity: More liquid reference entities have tighter pricing.

Comparable value factors are based on spread differentials among similar firms with equivalent ratings. For example, the substantial spread difference between Ford and General Motors reflected in Figure 3, both BBB autos, could signify a temporary relative-value opportunity or something more fundamental.

CDS are predominately settled by physical delivery of the least expensive instrument.<sup>12</sup> Once a credit event has occurred, the protection buyer purchases the instrument selling at the highest discount to par and

delivers it to the protection seller at par. Settlement mechanics require notification of the credit event supported by evidence of public announcement of the event and position closing within proscribed times.

As with any insurance product, payment is based on the coverage definition or, in the case of CDS, the definition of default or the credit event. This definition can be complex. It can run several pages in a loan agreement. Yet, for CDS, which use a shorter amended International Swap Dealer Association (ISDA) form, this complexity is sometimes overlooked.

FIGURE 4  
Structure of a Collateralized **Debt Obligation**

Credit events can be categorized as follows:

- \* Hard events: Bankruptcy and failure to pay.
- \* Medium events: Default and payment acceleration.
- \* Soft events: Reference firm or obligations have been restructured. This involves changes in a reference obligation's rate, term, amortization, or priority as part of a financial restructuring.

The hard and medium events are typically beyond the protection buyer's control and, thus, present limited issues. The softer restructuring events, however, can be influenced by buyers. They give rise to moral hazard problems in which buyers can trigger a credit event and payout even though no default or economic loss has occurred.

This unexpected consequence was illustrated in 2001 with the Xerox restructuring. Xerox's bank group agreed to extend its loan to solve a liquidity problem. In exchange, the bank group received collateral, thereby enhancing its position. This was reflected by improved secondary loan prices. Nonetheless, Xerox bonds declined in value after being effectively subordinated to the restructured loan. Banks that had acquired protection declared a credit event, purchased Xerox bonds at a 30 percent discount, and presented them for par to the protection sellers. The protection sellers found that they were exposed to an unrecognized legal risk whereby they covered both default and credit deterioration risk. They mispriced the risk by failing to understand the risk factors.

In response to this problem, the ISDA documentation has evolved. The options, effective May 2003, now include full restructuring language as in Xerox, modified restructuring with limitations on deliverables upon a restructuring, and exclusion of restructuring as a credit event. A pricing differential of 15 percent to 20 percent exists between the full and no-restructuring language. We can expect other legal risk and documentation issues to surface given the complexities of loan agreements compared to the ISDA. Undoubtedly, they will be resolved over time as the market evolves but not without more traps for the unwary, such as Xerox.<sup>13</sup>

The current CDS market is evolving. The unexpected credit-quality decline among fallen angels such as Enron, WorldCom, and Global Crossing affected protection sellers. Firms such as Swiss Re and Scor have suspended further activity, while others, including General Re and Zurich Financial, have curtailed efforts. These early participants suffered from overexposure in a new market in which they mispriced risk.

Protection sellers have responded by challenging bank protection buyers from benefiting from insider information. They allege that the Chinese wall separating banks as credit providers with access to insider information and their CD trading desks is porous. Banks are believed to use this access and

information to discover credit problems before they become public. They then use this information to purchase credit protection from unsuspecting sellers without properly disclosing this preexisting condition. This gives rise to a classic lemon-selling problem, which could harm the future development of the market.<sup>14</sup>

An additional problem stems from the lack of disclosure and limited regulatory oversight. Hedge funds, for example, can use the CDS market to influence equity prices. They can use the leading indicator nature of CDS to create the appearance of a credit problem to drive down a firm's stock price. This may have occurred in 2002 with MBIA. More than \$1 billion of CDS were purchased by a hedge fund in a short time. This caused CDS spreads to widen and raised the question of a looming credit problem, which depressed their stock price. Regulators are investigating this potential abuse. This may lead to increased regulation.

The net effect of the above is increased CDS pricing. This reflects providers' pricing more rationally to better reflect risks than achieve market share. In addition, short-term liquidity may be curtailed by the withdrawal of some traditional participants.

#### Collateralized **Debt Obligations**

Collateralized **Debt Obligations** (CDOs), the second major credit derivative instrument after CDS, are securities backed by a diversified pool of exposures.<sup>15</sup> The securities credit-risk exposures are based on their seniority or tranche in the overall capital structure. The market totals \$1 trillion in outstandings with annual issuance exceeding \$250 billion. Transaction size and maturity can exceed \$10 billion and 10 years, respectively. Figure 4 depicts a generalized CDO.

The various CDO types are based on the following characteristics:

- \* Market execution. Cash transactions are funded exposures acquired in the cash market. Synthetics are unfunded exposures acquired in the derivatives market. They represent a hybrid combination of derivative and securitization technology.

- \* Purpose. (1) Balance sheet: Used primarily by banks to reduce regulatory capital. Assets are transferred to the special-purpose vehicle (SPV) with the seller taking back the first loss exposure. (2) Arbitrage: Money manager **purchases asset** exposures based on a given capital structure. Its profit is the spread or arbitrage between the asset returns and funding costs.

- \* Credit structure. (1) Cash flow: Portfolio principle and interest used to repay tranche holders. (2) Market value: Trade to increase value, which is used to repay tranche holders.

Despite the many variations, CDO substance remains the same. Portfolio credit risk is transferred. Securities are issued with differing seniority. Income is distributed top down, to the senior-most instruments. Losses are distributed bottom up, to the junior-most instruments. Thus, the collateral risk profile is altered through tranching, the sequential ordering of priorities. This enhances liquidity as a wider investor group is accessed.

There are three key risk considerations involved with CDOs. The first concerns the asset class. CDO assets can include the following:

- \* High-yield bonds
- \* Commercial and industrial loans
- \* Emerging-market and sovereign debt

\* Asset-backed debt (all seniorities)

\* Investment-grade debt

\* Distressed debt

\* Equity

Each asset class has varying degrees of liquidity and credit risk, which affect realized values available to various CDO tranche holders. For example, loan collateral generally has a superior liquidation value compared to high-yield bonds, given its senior secured position. Thus, CDOs weighted with loans have outperformed those weighted with bonds in the current stressed credit environment.

The next consideration is structure. Equity levels for synthetic CDOs were 2 percent compared to 4 percent for cash transactions. This was based on their perceived lower risk due to shorter tenors, higher diversification, and lower interest-rate and par-accretion risk. Unfortunately, actual performance illustrates that the 2 percent equity level is insufficient, reflected in the large number of synthetic downgrades. The significant equity difference underlies their dominance, more than 75 percent of the 2002 volume, in synthetic structures. This factor fuels CDS growth and illustrates the convergence of the instruments. Other important structural features include capital structure complexity and seniority, control over payouts, and trading restrictions.<sup>16</sup>

Perhaps the most important consideration facing CDO investors is the quality and experience of the asset manager. The focus is on asset-class expertise, investment strategy, track record, and transparency. Investors have been harmed by asset managers' temptations to invest in cheaper or riskier assets within a rating class. Ultimately, this leads to a higher-risk portfolio. The difficulty in placing the junior CDO tranches, the highest-risk components of the capital structure, leads some sponsors to subsidize their origination efforts by retaining the junior instruments themselves. The performance of the difficult-to-value junior tranches is at best mixed. Retaining such tranches to subsidize origination efforts appears unattractive given some high-profile problems. For example, in 2001, Am Ex suffered large losses relating to the first-loss tranches in CDOs they had originated. Am Ex consequently terminated the activity.

As with related CDS, the current credit environment has affected CDOs. Downgrade pressure on single names like El Paso, which suffered a same-day 5-notch downgrade, and fallen angel defaults, for example, WorldCom, have triggered numerous CDO downgrades. Especially affected are low-equity synthetic CDOs using bond assets given their lower recovery values and thin equity cushions. Almost 10 percent of the CDO market has been downgraded, including many AAA instruments. An active secondary market had developed for depressed, formerly AAA instruments. Some of these instruments are being used as collateral for new CDOs. Overall, the market has reacted well with improved structures and forcing out new or weaker asset managers.

Conclusion

Credit derivatives represent a relatively recent development. They have moved beyond risk management to become a new credit-asset class. They do, however, suffer from problems concerning their use. These include pricing, documentation, credit, and liquidity concerns. Standardized, transparent, exchange-traded instruments that can be marked to market are needed for the market to move to the next stage of development.

The current focus should be on appropriate risk identification and compensation. Bank investors should be concerned about credit and rating

arbitrage opportunities. Frequently, they are more apparent than real. Hopefully, the risk framework outlined in this article can help distinguish the opportunities. Nonetheless, this rapidly growing market promises to enhance credit-market liquidity and risk-based pricing.

Derivatives allow structuring institutions to open the doors separating markets to achieve the best client execution.

Credit default swaps are the dominant credit derivative instrument.

Perhaps the most important consideration facing CDO investors is the quality and experience of the asset manager.

Notes

1. Over-the-counter markets are similar to an eBay-type market using bilateral arrangements. Regulated organized exchanges operate as multilateral clearing platforms using standardized contract and settlement procedures. It is interesting to note that, while over-the-counter CDs continue to grow rapidly, exchange-traded contracts have declined.
2. "Global Credit Derivatives: Risk Management or Risk," Fitch, Mar. 10, 2003, highlights a large and growing number of banks acquiring credit-risk exposure through the derivatives market.
3. In a TRS, the protection buyer pays the cash flow received on the asset plus capital appreciation and receives a **floating rate** plus any capital loss. Effectively, credit and market risks are transferred.
4. CDNs are **notes** linked to the performance of a reference asset. Essentially, they constitute a synthetic bond with a CD embedded in the structure. They are useful for investors subject to limits on derivative holdings.
5. CDS represent an insurance-type product when the buyer pays a fee for the right to receive a contingent payment based on a defined credit event concerning a reference asset.
6. CDOs are securities backed by a diversified pool of credit assets including loans, bonds, or derivatives.
7. During a May 8, 2003, speech at the Chicago Federal Reserve Bank, Alan Greenspan, stated while recognizing the benefits of CDs, expressed his concern over the liquidity and credit concentration issues flowing from the limited, and declining, number of major derivative dealers. He noted that one dealer accounts for about one-third of the global CD market, while just a "handful of dealers" account for two-thirds, with JP Morgan Chase as the largest dealer.
8. For example, the taking of collateral transforms the risk from credit to operational concerning the valuation, monitoring, and perfection of the collateral interest.
9. The current Securities and Exchange Commission (SEC) Chairman, William Donaldson, noted this point in 1992, when he stated, "No matter how much hedging is done, someone ends up holding the hot potato when the music stops."
10. Warren Buffet highlights the importance of considering exposure risk in his Berkshire Hathaway 2001 Annual Report.
11. The CD market provides a useful leading indicator of credit-quality information with widening spreads reflecting possible credit concerns.

12. The alternative cash settlement, par less the market value of the defaulted reference obligation based on a dealer poll, is used in less than 30 percent of CDS settlements.

13. The newly enacted ISDA definitions are already subject to dispute involving the demerger of Six Continents. At issue is the interpretation of "successors" to a demerger. More than \$500 million of CDS are at risk of becoming worthless.

14. If the market perceived that banks are buying CDS protection only for future problems, then it will bid accordingly. Buyers will find prices unattractive for quality credits. Consequently, they will seek protection only for problem credits.

15. Other CDO forms include collateralized bond obligations (CBOs) and collateralized loan obligations (CLOs).

16. A recent development is the Moody's trustee surveillance issue. Moody's was concerned over a perceived lack of trustee involvement in the National City default case. Consequently, Moody's will pay closer attention to trustee responsibility. This may mean lower ratings for weaker trustee roles.

Joseph V. Rizzi is managing director, ABN AMRO Bank, N. V., Chicago. He can be reached at joe.rizzi@abnamro.com. The views expressed by the author do not necessarily represent, those of ABN AMRO Bank.

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**Mortgage models, interest rate risk, and the consumer: A four country comparison**

**Proxenos, Soula; Taff, L G**

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**Abstract:**

This paper examines the characteristics of the typical fixed-rate mortgage product in four countries and the concomitant interest rate risks and costs

that they imply for the consumer. In each instance the funding, and therefore the potential duration mis-match, is handled in a different fashion. The role of the national government also varies with regard to **interest** rate regulation, **interest** rate risk management, and the management of mortgagor **default** risk. The benefits and drawbacks of the various systems from the home owner's perspective are examined. The US system is the only one that allows a home owner to fix their mortgage interest rate for a long term and allows the borrower to refinance with no notice, no pre-payment penalty, and at any time for any reason. Moreover, the US has the least government interference and one of the highest home ownership rates in the world at one of the lowest costs for the consumer. The countries considered are Denmark, Canada, the US, and the Netherlands.

## Text:

### INTRODUCTION

This paper examines the characteristics of the typical fixed-rate mortgage product in four countries and the concomitant interest rate risks and costs that they imply for the consumer. In each instance the funding, and therefore the potential duration mis-match, is handled in a different fashion. The role of the national government also varies with regard to **interest** rate regulation, **interest** rate risk management, and the management of mortgagor **default** risk. In our summary section we examine the benefits and drawbacks of the various systems from the home owner's perspective. The U.S.A. system is the only one that allows a home owner to fix their mortgage interest rate for a long term and allows the borrower to refinance with no notice, no pre-payment penalty, and at any time for any reason. Moreover, the U.S.A. has the least government interference and one of the highest home ownership rates in the world at one of the lowest costs for the consumer. We think that the latter two beneficial circumstances are consequences of the consumers' ability to fix the interest rate for long periods of time and the low cost of the embedded pre-payment option. In a sense, the core of the paper is summarized in Table 1 while the rest is explanation. The countries we consider are Denmark, Canada, the U.S.A., and The Netherlands.

THE BASIC FUNDING SOURCES: EUROPE VS. AMERICA

European property and mortgage markets are structurally very different from each other and the North American markets. They differ in the diversity of the types of lenders and in their mortgage product variety. Property and mortgage markets remain intrinsically domestic in Europe even though the European Union is moving toward the creation of a potentially deep and liquid single capital market. While the European capital markets fund house purchases with mortgage bonds and mortgage-backed securities, time and demand deposits remain the most common source of funds for lending purposes (e.g., deposits with agreed upon maturity, deposits redeemable at notice, or overnight deposits). The European Monetary Fund estimates that retail deposits fund about 65% of residential liens with approximately 60% of mortgage credit still being granted by mortgage-specific firms.

A very common European funding method is via mortgage-backed bonds. They were first issued during the eighteenth century and they can vary quite a bit. Mortgage-backed bonds are secured debt securities issued by mortgage credit institutions supported by certain types of assets, usually residential mortgages, that remain on the balance sheet of the issuer. The originating institution retains the credit risk associated with the underlying mortgages. It may be removed by the use of a synthetic credit-linked derivative much more complex than the guarantee fee mechanism

used in the mortgage-backed security (or via a senior/subordinate structure). The use of mortgage-backed securities (MBSs), by contrast, involves the sale of liens and their removal from the originating institution's balance sheet. With an MBS the originating firm retains any excess interest over the all-in cost of the securitization but removes the loans and any associated capital requirement from its balance sheet. This is the dominant form of providing funds for residential home **purchasing** in the U.S.A.

Because of the nature of the **assets**, and the accompanying enabling legislation, a mortgage-backed bond (MBB) provides its holder with a special degree of security. This dramatically reduces the default risk to the bond holder. Hence, the issuance of MBBs allows lenders to obtain funding at a reduced cost thereby making it a cost-effective technique for home loan funding. In Europe the issuance of MBBs is the second most important type of funding method after retail deposits. About 25% of residential liens outstanding are supported in this fashion<sup>1</sup>.

Interest rate risk management and the role of the national government is briefly indicated in Table 1. We will discuss each country's basic mortgage product, funding mechanisms, methods of insuring against **default** (though not local underwriting criteria), and **interest** rate risk in turn. In our final section we review each country to examine the complexity, costs, and benefits to their home owning publics.

OVERVIEW OF THE DANISH MORTGAGE MARKET

The dominant mortgage product in Denmark is a fixed-rate, long-term, fully-amortizing, level-payment, periodic-paying, no penalty pre-payable, mortgage. While this product appears similar to the one ascendant in the American market, it is very different in two important ways. First, Danish mortgage banks are prohibited from assuming interest rate risk. Second, there is the potential for – compared to the U.S.A. – enormous financial complexity at the consumer level. This stems from the choices a potential home owner has to make regarding the raising and disbursement of their home-buying funds and the mechanisms they might utilize to protect themselves against interest rate risk. The Danes utilize MBBs to fund home acquisition. They have no MBS market.

The traditional Danish mortgage carries a fixed-rate and maturity option of 10–30 years. However, with the recent large drop in market rates, adjustable, short-term home loans have become increasingly popular both denominated in Danish krone (DKK) and in the euro (and tied to EURIBOR).

#### LEGISLATION AND FUNDING

Denmark's various Mortgage Credit Acts define mortgage credit activities as the granting of loans against registered mortgages on real property from the capital obtained by issuing bonds with the value equivalent to the home loans. The current Mortgage Credit Act (MCA) requires that a mortgage bank have minimal interest and foreign exchange rate risk; an interest rate risk no more than 1% of its capital base for a market rate change of one percentage point and a exchange rate risk of not more than an amount equal to 10 bp (= 0.1%) of its capital base. The MCA also stipulates that mortgage loans for owner-occupied dwellings may not be re-paid over a period longer than that of a 30-year annuity ( i.e., fully-amortizing) loan. Most Danish mortgages are fixed-rate liens supported by callable bonds.

#### The Basic Rules

The basic lending rules of the Danish MCA are divided into three parts<sup>2</sup>:



- \* The maximum maturity of the loans is thirty years.
- \* The maximum loan-to-value ratio for single-family dwellings is 80%, and
- \* The valuation of the property must be market-determined and conservative.

The following three principles characterize Danish mortgage credit<sup>2</sup>:

- \* All home loan lending is financed through the issuance of MBBs that are listed on the Copenhagen Stock Exchange.
- \* The mortgage banks must observe the balance principle. It ensures an equilibrium between payments received from borrowers and payments made to MBB holders (principal and interest), and
- \* The lending rate is market based.

In theory the mortgage banks in Denmark issue MBBs with the same nominal value and interest rate as the principal and the note rate on the home loans that the bonds finance. (These MBBs are usually issued on an open, or "tap", basis.) Each bond has a unique identification code. Re-payments of principal made by borrowers on loans require that an equal amount of face value of the bond with the same identification code be withdrawn from circulation. Thus, lending and the corresponding increase in the face value of an open series of MBBs take place under an exact balance between payments from the underlying mortgages and their matching MBBs. Therefore, the only risk of a mortgage bank is credit risk.

#### TODAY'S MARKET

About 55% of the Danish population resides in owner-occupied dwellings. This is low by European standards; the European Union average is over 60%. This may be a consequence of the large quantity of subsidized rental housing and the high quality of social housing dwellings. Amended tax rules have also greatly influenced the home ownership rates. The ability of individuals to deduct interest payments on home loans has been significantly reduced to 32% of their interest payments as compared to 65% in 1985(2).

The Danish MBB market is among the largest in the world relative to Gross Domestic Product. The total amount in circulation is more than DKK 1.9 billion, approximately twice Denmark's Gross Domestic Product. MBBs amount to about 60% of their bond market. MBBs represent 80% of fixed-income securities listed on the Copenhagen Stock Exchange. The six largest MBB series represent more than 40% of the total of all MBBs outstanding.

The Danish mortgagor preference for housing funds has shifted over the last decade. Between 1990 and 1993 the mix of fixed-interest mortgages were about 60% annuity and 40% serial loans for owner-occupied homes<sup>2</sup>. Annuity loans have constant periodic payments and are the most frequently used product type. With a serial form of lien the home owner makes equal principal payments. As a consequence the interest component steadily decreases.

From mid-1993 until recently fixed-interest annuity (i.e., fully-amortizing) loans have been the predominant product form. Loans can be granted to borrowers as either cash or bond loans. Until the latter half of 1996 the source of funds borrowers preferred was cash loans. For bond loans the principal of the mortgage is equal to the nominal amount of the MBBs issued to finance them. The interest payments on the lien correspond to the coupon payments on the MBBs. For a cash loan the principal amount equals the market value of the bonds and the interest rate corresponds to the yield-to-maturity. Most new home loans are being granted as bond loans

because of a tax law amendment. Bond or cash loans for residential purchase can be granted in annuity or serial forms. Today the vast majority of home loans takes the form of fixed-interest bond loans<sup>2</sup>. Since 2000 home equity loans have become available; they are known as mortgage equity withdrawal loans.

After 1996 the new version of an adjustable-interest mortgage was introduced. These variable-rate liens typically have an amortization term of 20- to 30-years and are re-paid by the annuity principle. However, their funding is based on short-term, non-callable bonds with a life time of 1- to 11-years but mostly 1- to 5-years<sup>2</sup>. This means that the outstanding amount needs to be refinanced by the borrower on a current basis. The mortgagor may choose whether the adjustable-rate loan has a fixed payment or a fixed term-to-maturity. Adjustable, short-term loans can have one, four, or twelve payment dates per year. Since 2000 an interest maximum guarantee has been available (i.e., one can buy an interest rate cap on an adjustable-rate mortgage).

#### Variations Among Loan Types

The vast majority of liens in Denmark are annuity though serial payment and bullet (i.e., non-callable) loans are also granted. Fixed-rate interest loans usually have four annual payment dates. The majority of fixed-rate mortgage loans can be pre-paid at par. In Denmark the term pre-payments covers all terminations at par - both immediate, complete, principal re-payments and those notified in advance (so that redemption occurs on a coupon payment date)-less any annulled MBBs. (An annulled MBB is one that the mortgage bank purchases in the secondary market to maintain the balance principle.) For the adjustable, short-term products the borrower takes out an annuity loan with a 20- or 30-year amortization term. The interest rate is altered at regular intervals, usually on January 1.

#### Home Loan Costs

In Denmark borrowers are charged a (credit) risk and administration fee by the mortgage bank. This fee covers management expenses (i.e., servicing), loan losses, real estate tax payments, and a contribution to the bank's reserves. The fee is charged throughout the life of the lien, on every payment date, and is 50-100 bp of the outstanding debt. The fee depends on the category of property, the security ranking of the loan, its size, and its maturity. It is tax deductible to the mortgagor. It appears that this fee is a significant component of the mortgage banks' profits as they cannot earn money off the spread between their cost of funds and the note rate on a lien.

#### PRE-PAYMENTS

The balance principle of the Danish MCA requires that all mortgage banks redeem MBBs, on a current basis, equivalent to their borrowers' ordinary re-payments and any extraordinary redemptions. The former represent extra principal amounts that will be re-paid on a regular payment date with the bank being notified in advance. The latter represent extra principal amounts that will be re-paid on other than an ordinary settlement date without prior warning to the mortgage bank<sup>3</sup>. The information on pre-payments is updated and rapidly published enabling investors to better assess their pre-payment risk.

In the case of immediate redemption the borrower is not required to wait to buy back their home loan until the next settlement date. However, the borrower must pay the mortgage bank the interest amount lost over the period from the actual date of redemption until the (ordinary settlement) date as of when the lien could have been redeemed were it a notified pre-payment. Callable loans may be redeemed with the appropriate MBBs; alternatively the borrower can redeem the loan for an amount equivalent to

the outstanding MBB debt at par value. While the normal procedure is notified redemption at par of the MBBs, or the equivalent amount of funds, the market price of the MBBs should not be ignored. Indeed, the factor determining the choice of cash redemption on an ordinary settlement date or redemption via bonds without notification is whether the market price of the bonds associated with the home loan to be paid off is above or below par. MBBs selling at a discount can offer a less expensive alternative to pre-payment (remember that the interest differential will be due in this instance).

#### OVERVIEW OF THE CANADIAN MORTGAGE MARKET

The Canadians primarily use a fixed-rate, short- to intermediate-term, partially-amortizing, level-payment, periodic repaying, mortgage instrument with a pre-payment penalty, for their home loan. Considerable volatility along the Canadian yield curve has resulted in a movement away from a long-term, fixed-rate, mortgage product to a short- or medium-term outlook. Even though the interest payment is not fixed, these are all still long-term, fully-amortizing, mortgage products. Moreover, the Canadian Federal Government has been, and continues to be, much more involved in the primary mortgage market than is the case in the U.S.A. For example, in Canada one out of three homes has mortgages which are Government-insured. In addition, the Government both provides monies for home loans by borrowing in the capital markets (and used to set home loan rates)<sup>4</sup>. Finally, Canada has a small, and very recent, MBS market and an even smaller and newer MBB market. Hence, the bulk of the funding for mortgages is the time and demand deposits of retail bank customers<sup>4</sup>.

#### LEGISLATION

As in the U.S.A., during the early part of the twentieth century Canadian mortgage financing was characterized by high down payment, short-term, interest-only, home loans. These were paid periodically (generally monthly) for a set period of time. Partial re-payments of principal seldom occurred; rather, the entire, original, principal balance was to be re-paid (or refinanced) upon maturity. Since these liens had a substantial down payment requirement, the mortgagor's income was the **security** for the periodic **interest** payments and the property served as protection for the debt (i.e., the principal amount). Following the failure of this system during the Depression a new home loan product wherein periodic payment of both interest and principal occurred during the term of the home loan became the standard. This is the familiar, fixed-rate, long-term, fully-amortizing, level-payment, periodic-paying, mortgage. This product type was the rule in residential mortgage lending for almost thirty-five years (ca. 1935-1970<sup>4</sup>).

#### Default Insurance

Another major innovation during the period 1935-1970 was the use of default insurance. To increase the supply of funds for home loan purchases the Government motivated financial institutions to increase their participation by reducing the risk of loss in the event of default. The Canadian Government continues to insure against default today. Borrowers pay fees into an insurance fund established and managed by the Government. Monies from this fund are used to compensate lenders when default occurs. The insurance program played a major role in attracting new lenders to the mortgage market, particularly the chartered banks<sup>4</sup>.

#### More on Legislation

The Canadian Mortgage and Housing Corporation Act (1945) established the Canadian Mortgage and Housing Corporation (CMHC) as a Crown Corporation (implying that its **debt obligations** carry the full

faith and credit guarantee of the Government of Canada) to administer, on behalf of the Government, the Federal participation in housing as described by the National Housing Act of 1944. The CMHC provides mortgage credit Insurance to protect National Housing Act (NHA) "Approved Lenders" from default. Today the CMHC (and GE Capital), much as Ginnie Mae in the U.S.A., insures MBS owners against default by the issuers/servicers as well as the mortgagors.

Over time, to bring about an increase in private funds and shift toward private lending, three major innovations were introduced in the various revisions of the NHA. In 1954 joint lending was replaced by Government-insured loans with the full amount of the funds to be provided by commercial lenders. The CMHC acts as the insurer and charges a one time fee varying with the loan-to-value ratio. The CMHC's underwriting standards will only allow a borrower to spend up to 32% of their gross income on shelter obligations and no more than a total of 40% on shelter and nonshelter related periodic financial obligations combined (the corresponding conforming loan percentages are 28% and 32% respectively in the U.S.A.)

Secondly, the Bank Act was changed to permit chartered banks to lend on insured mortgages. The chartered banks and Quebec saving banks, as well as insurance, loan, credit union, and trust companies are approved lenders. After this change an increased supply of home loans became available almost everywhere in Canada.

Finally, in 1967, the Bank Act was amended to remove the interest rate constraint that had been imposed on mortgagees. At the same time the banks were permitted to participate in the conventional and NHA-insured mortgage markets. Provision was also made to establish a secondary market for insured loans to both supply an increasing amount of monies for residential home purchases and to enhance the liquidity of whole loan trading<sup>4</sup>.

#### Inflation

At the end of the 1960s a rapid inflation corresponded to a period of rising consumer demand. Nominal interest rates rose and long-term lenders found themselves faced with a huge duration mismatch. Moreover, in Canada, individual borrowers had been protected by interest rate caps granted by the Canada Interest Act. Mortgage lenders had no such protection from being locked-in to long-term loans at interest rates below the higher, current ones. The 31% (9% per year to 11.8% per year) increase in conventional note rates in the three-year period commencing January, 1972 illustrates the amplitude of the problem. The 75% (12.5% per year to 21.5% per year) rise that occurred between September, 1979 and September, 1981 exacerbated the difficulty<sup>4</sup>.

Such dramatic increases in monthly mortgage payments, particularly during the 1982 recession, had severe consequences for home ownership in Canada. This can be seen by the claims made on the default insurance funds established under the various National Housing Acts. From the fund's inception the default insurance fund grew steadily with revenues consistently exceeding expenditures. However, starting in 1979 and continuing to 1983, claims greatly exceeded revenue. For example, in 1983 revenue to the fund was \$89.4 million while expenses were \$349.7 million<sup>4</sup>. To accommodate lenders a new form of lien was developed known as a partially-amortized mortgage and it emerged as the most general form of home loan. This instrument passes intermediate-term interest rate risk to the home owner.

With this vehicle the lien amortizes over a long period of time but matures, that is reprices, on a short- or intermediate-term basis. At

maturity the full amount of the outstanding balance must be re-paid or refinanced at the market interest rate.

Because the short-term, partially-amortized, mortgage permits the periodic re-adjustment of note rates this allows the lenders to better match the interest rates that they offer on their liabilities (e.g., time and demand deposits plus a multitude of Guaranteed Investment Contracts) and their assets (e.g., mortgages). Of course it simultaneously forces the home owner to bear the burden of interest rate volatility. In an attempt to reduce the turmoil caused by this instability, the Government introduced an interest rate insurance program in 1984. Borrowers could purchase insurance against having to make payments based on an interest rate that is more than a specified number of percentage points greater than the rate specified in the original mortgage (i.e., they could buy an **interest** rate cap).

Independently, the CMHC launched a new program in 1987-the NHA Mortgage-Backed **Security** (MBS). This program was designed to help provide a steady flow of mortgage funds into housing in Canada by increasing liquidity in secondary market trading. The NHA MBS was explicitly modeled after the U.S.A.'s Ginnie Mae version. Today there is about \$75 billion outstanding in this form (roughly 5% of the market<sup>4</sup>). The CMHC's role was expanded to include the provision of the unconditional guarantee of timely payment of interest and principal when pools of these insured mortgages were created. This CMHC guarantee is in effect a guarantee of the Government of Canada.

#### Mortgage Funding

The residential mortgage market has been increasingly funded by the banks; rising almost linearly from 11% in 1971 to 55% in 1996<sup>(4)</sup>. The principal source of funds for home buying in Canada is the deposits of the Canadian populace. The banks primarily use some version of a Guaranteed Investment Certificate (GIC) to entice savers to invest in products which provide monies for home purchasing. These GICs come in a wide variety of forms.

Lenders cannot normally make a loan which is more than 75% of the market value of a house unless the lien is insured by the CMHC or GE Capital. Mortgage default insurance may be available for loans up to 95% of the property's value. The residential mortgage market comprises approximately one-quarter of Canada's domestic capital markets. The Canadian homeownership rate is about 65% while over half of Canadian households own their own homes outright<sup>4</sup>. In Canada, neither real estate tax payments nor mortgage interest is tax-deductible.

#### LOAN TYPES and PRE-PAYMENTS

An "Open Mortgage" typically has a 6-month or 1-year term. This product allows borrowers to re-pay, at any time, without a pre-payment penalty. A "Closed Mortgage" normally has a 1- to 5-year term (but typically a 25-year amortization period). The fixed-rate product can be paid at a frequency varying from weekly to monthly. This type of lien cannot be pre-paid nor discharged before the end of its term without the borrower having to pay a significant penalty (typically three months' interest) except on the sale of their property (a "due-on-sale" clause). Closed mortgages may have a penalty-free pre-payment option of 10-20% of the original principal amount or a maximum monthly "double-up" payment solely allocated to outstanding principal balance reduction. There are many other variations.

A "Variable-Rate Mortgage" or "Adjustable-Rate Mortgage", with a term of 6-months to 1-year, has an interest rate directly linked to money market rates. With a variable-rate mortgage the monthly payments are still fixed

but, as the current interest rate goes up, a larger portion of the regularly scheduled payment will be applied toward the interest component; the converse would apply in a falling interest rate scenario.

The up front costs of home buying in Canada are comparable to those in the U.S.A. The lack of mortgage interest and real estate tax deductibility raises the effective ongoing cost by the home owner's marginal tax rate. In addition, the absence of a long-term, fixed-rate lien passes interest rate risk onto the home owner.

#### OVERVIEW OF THE U.S.A. MORTGAGE MARKET

The basic instrument in the U.S.A. was created by the Federal Housing Administration seventy years ago; it is the fixed-rate, fully-amortizing, long-term, monthly-paying, level-payment, no pre-payment penalty, mortgage with an American-style call option embedded in it. Although there is no national housing legislation in the U.S.A. comparable to that in Denmark or Canada, there has been Federal Government involvement, in several ways, to minimize default risk and to enhance liquidity in the secondary market. As a result, the residential housing finance system in the United States has evolved from several different components.

To understand the current American mortgage market one needs to remember the crisis in the Savings and Loan associations, or thrifts, during the 1980s and before that the problems which stemmed from the Depression. Between the 1930s and 1970s the thrifts funded long-term, fixed-rate, liens on the basis of short-term, and hence variable-rate, deposits. The result was a lack of liquidity and duration mis-match resulting from the mistake of borrowing short-term and lending long-term. Nonetheless, this system worked well in a time of stable interest rates. Many thrifts collapsed after 1979 following the sharp increase in the absolute level and volatility of short- and long-term interest rates. Much of the Savings and Loan industry's capital was wiped out between 1979 and 1981 when 20% per year interest rates prevailed<sup>5</sup>. Those thrifts that survived realized that fixed-rate loans are exposed to a high level of interest rate risk and therefore should not be held on their balance sheet but instead be sold into the secondary market. This change in mode of business greatly expanded the role of the government-sponsored enterprises that had been created in the late 1960s.

#### MARKET STRUCTURE

The U.S.A. has a primary residential mortgage market for the retail origination of single-family loans whose collateral is real property [that is the land and the building(s) on it]. Savings banks and savings and loan (or thrift) institutions were the main sources of funds for this purpose-utilizing the balances of their depositors. While deposits are still a source of funds today, the capital markets provide most of the monies for housing loans via the privately owned, government-sponsored enterprises (GSEs) like Fannie Mae, Freddie Mac, and the Federal Home Loan Banks. Separately, the Federal Government fully guarantees the mortgages packaged into securities by Ginnie Mae. This structure explains the subdivisions of U.S.A. home loans based on whether or not the loan is conventional or non-conventional (i.e., not insured vs. insured by the Federal Government) and conforming or non-conforming (i.e., not exceeding vs. exceeding an amount computed by a formula that takes into account changes in home prices). Independently there is a totally private market involving the banks, other secondary market conduits, and the mortgage bankers and brokers.

Together these components of the secondary residential mortgage market provide the links between the primary residential mortgage market and the capital markets. The government-sponsored enterprises especially facilitate the flow of funds from investors in mortgage-derivative securities to the

primary housing market. Pass-through, mortgage-backed securities (MBSs), are the main type of funding instrument used by the GSEs. The Federal Home Loan Banks, which are wholesale banks, facilitate a deposit-based system of savings and commercial banks, savings and loan institutions, credit unions, and life insurance companies with corporate debt. Among them additional liquidity is provided for the financing of the construction of, and the sale of, residential housing.

The secondary mortgage market is chiefly devoted to whole loan sales. Commercial banks, life insurance companies, pension funds, Wall Street dealers (who issue whole-loan and private-label MBSs, structure more complex REMIC deals, and so forth), are active in the secondary market as are the GSEs. There is also a part of the secondary market which deals with less than excellent credit rated loans, home equity loans or second mortgages, and liens on manufactured housing.

#### Advantages of the Secondary Market and Funding

The U.S.A. secondary residential mortgage market and particularly the GSEs:

- \* Assist in smoothing out imbalances in the availability of mortgage funds across a geographically large, economically diverse, country.

- \* Allow lenders to originate mortgages for sale rather than retain them for portfolio investment. This frees their capital and permits them to structure their balance sheets in risk-minimizing, profit-maximizing, ways. Also, by re-supplying the banks' funds, they can originate more mortgages thereby increasing their fee-related income.

- \* Attract investors to mortgage-related investments via standardized product definition, underwriting, and MBSs backed with homogeneous collateral.

- \* Provide greater liquidity by financially engineering securities to meet the cash flow needs of investors (e.g., stripped MBSs and REMICs; a REMIC is a multi-class, structured-security backed by MBSs).

- \* Increase the affordability of home owning by creating a larger supply of less expensive funds with Government or GSE credit guarantees, and

- \* Closely tie mortgage **rates** to other fixed-income interest **rates** (particularly the 10-year U.S. Treasury **Note**).

Finally, another advantage of the GSE-sponsored MBS markets is that there exists a very wide range of retail products. Fifteen-, 20-, and 30-year fixed-**rate**, 30-year **floating-rate**, various hybrid types, re-set balloon, government-guaranteed, and so on are all available to be pooled into MBSs or REMIC classes. This means that short-, intermediate-, and long-term REMIC tranches may be carved out to satisfy investor demand. Hence, sundry investor requirements with respect to interest rate, credit, and pre-payment risk can be met by the various classes of a REMIC.

Private conduits also purchase mortgages to re-package them and sell them to fixed-income investors. In addition, private conduits provide a secondary market in the non-conforming and sub-prime (less than good to excellent credit) markets. Whole-loan conduits also specialize in transforming conventional mortgages that exceed the lending limits imposed on the GSEs into whole-loan securities, dealing with liens from borrowers with less than perfect credit ratings, home equity loans, second mortgages, home improvement loans, and so on. MBSs not issued by GSEs (the so-called non-agency MBSs) have much wider spreads in term-to-maturity, coupon rates, and so on than agency versions (e.g., mixing 15- and 30-year liens

together). In addition, whole-loan MBSs typically have external (i.e., private) insurance guarantees or internal credit enhancements (e.g., via a senior/subordinate structure) to allay the fears of investors with respect to default risk.

#### LEGISLATION

The U.S.A. Congress created the Federal Housing Administration as part of the passage of the National Housing Act (NHA) of 1934. The Federal Housing Administration encouraged investors to lend for residential home purchasing by offering them default insurance. However, only those mortgages (and borrowers) that conformed to the FHA's homogeneous underwriting standards could be eligible. Thus, the FHA created the first uniform mortgage application and underwriting requirements. This standardization dramatically increased the efficiency and liquidity of the secondary mortgage market. In addition, the FHA invented and promoted the fixed-rate, fully-amortizing, long-term, level-payment, monthly-paying, home loan. The standard term of 30-years meant manageable monthly payments. The fixed-rate/level-payment aspects stabilized housing expense making it easier for consumers to budget. The complete amortization feature meant that the home owner would (albeit slowly at first) build up equity in their property and eventually to own it outright.

In 1938 the U.S. Congress created the Federal National Mortgage Association to supply the credit guarantee and liquidity to the secondary mortgage market. In 1968 Congress divided this organization into two: A government-sponsored derivative, now known as Fannie Mae (a federally chartered corporation owned by private shareholders), and the still wholly Government-owned and controlled Government National Mortgage Association or Ginnie Mae. Ginnie Mae took over the old Fannie Mae's responsibilities with respect to the government-insured mortgage market. Ginnie Mae securities are backed by the full faith and credit of the United States Government.

The partially privatized Fannie Mae was made fully private in 1970 and authorized to purchase conforming loans. Thus, there was a government agency to support government-insured loans and a GSE to support non-government insured loans (up to an independently mandated maximum loan amount).

Ginnie Mae created the first publicly traded pass-through security in 1970. This instrument enabled bankers to sell mortgages in larger volumes to new mortgage investors. It also brought about greater liquidity than had existed in the whole loan market. Separately, in 1970, Congress created Freddie Mac to provide further liquidity to the conventional secondary residential mortgage market. Initially Freddie Mac was a government-charted corporation owned by the twelve Federal Home Loan Banks. Freddie Mac was authorized to purchase conventional loans as well as government-guaranteed liens. Freddie Mac issued its first pass-through MBS, known as a Participation Certificate, in 1971. (The Bank of America issued the first whole-loan, or private, MBS in 1977.) Fannie Mae started to issue its MBS in bulk in the mid-1980s. Freddie Mac introduced the first Collateralized Mortgage Obligation (CMO) in 1983. Three years later CMOs were transformed into the more tax-advantaged, more flexible, Real Estate Mortgage Investment Conduit (REMIC) structure.

#### The Federal Home Loan Bank System

There is an entirely separate GSE home loan funding system in the U.S.A. under the aegis of the twelve Federal Home Loan Banks. These are independently operated (wholesale) banks established in 1932. The regional banks are owned by their private member institutions and the FHLBank network operates on the private capital they provide. The FHLBanks provide financing support to about 7,900 institutions: 5,750 commercial banks,



1,500 thrifts, 550 credit unions, and 50 insurance companies.

The FHLBanks raise money by issuing corporate debt. These funds, known as advances, are lent to members at lower rates than are available to these institutions individually in the commercial markets. As of mid-2001 the FHLBanks had about \$665 billion in assets and \$450 billion in advances<sup>5</sup>.

#### LOAN TYPES and PRE-PAYMENTS

Home ownership in the U.S.A. is relatively high at about 68% because of a comparatively cheap source of funds provided by the GSEs. The market for home loan securities is huge, over \$6 trillion. Most mortgages in the U.S.A. are fixed-rate, fully-amortizing, 30-year, level-paying, monthly-payment instruments. Both shorter- and longer-term product types exist as do bi-weekly payment mortgages. Adjustable-rate mortgages and various hybrid versions with mixed fixed-rate and variable-rate elements comprise approximately 20% of outstanding home loans<sup>5</sup>. The fixed-rate aspect refers to the interest rate being constant (as opposed to floating) for the life of the loan. In general there are no pre-payment penalties or time constraints on pre-payments in an American residential mortgage (i.e., the home owner has the full exercise rights of an American-style call option on their debt). This option is paid for in the note rate. Fifty basis points was the typical amount that this call option used to cost the borrower (post-Russian 1988 default it has doubled).

#### THE DUTCH MORTGAGE MARKET

The mortgage market in The Netherlands has become a highly dynamic one. Substantial growth, an increasing interest in the secondary market, and a sharp rise in the variety of loan types available to consumers all illustrate the rapid changes. During most of the 1980s the linear and annuity mortgages were the most popular mortgage types. (The former has a constant periodic principal payment amount whereas the latter amortizes.) In the 1990s the life insurance and savings mortgages became the favorite product types because of their tax advantages<sup>6</sup>. With the savings mortgages no principal is re-paid during the term of the contract. Instead, the borrower makes interest payments on a regular basis to the lender. The main benefit is that the payments are interest-only which are fully tax deductible under Dutch law. On the other hand, the return on the savings and investment accounts are, under certain conditions, not taxed. Hence, these products take optimal advantage of the Dutch tax system<sup>6</sup>. The interest re-set date on most loans is 5-10 years after origination with a 30-year amortization period, much like in Canada.

In more detail, with the savings product one pays only the interest on the mortgage amount and a premium into a saving account. It is also possible to invest one's savings as a lump sum at the beginning of the term so that there are no monthly premiums. No principal payments are made during the life of the loan; instead a one-time savings account deposit is expected to grow to equal the mortgage balance on their common maturity/due dates. The deposit earns interest and also pays the premium for a life insurance policy; another credit enhancement mechanism to guarantee the pay off of the principal. This product has significant tax advantages. The bank pays an interest amount over its standard deposit rate equal to the mortgage note rate. Hence, apart from the tax effects, a savings mortgage is comparable with an annuity mortgage. Each time the mortgage interest rate is adjusted, the savings premium will be adjusted as well in order to guarantee the insurance payoff by the due date. As the mortgage interest is coupled to the savings premium, the savings premium will get lower when interest rates rise and higher should interest rates fall.

#### TODAY'S MARKET

The benefits of the euro and a large, common, financial market have been realized in the search for home loan funds for the 16 million residents of Holland. A reason is that the Dutch Central Bank allows for favorable treatment of assets taken off balance sheet thereby encouraging the issuance of MBSs. The first securitization of residential mortgages in The Netherlands was carried out early in 1996 profiting from both of these developments. Fifteen MBS transactions occurred up to September, 2000<sup>6</sup>. During the last half of 1990s home loans amounting to euro 8.7 billion were transferred to the special purpose vehicles (SPVs) used to hold the assets. The function of the SPV is to keep the collateral separate from that of the original lending institution<sup>6</sup>.

The progress in the housing and mortgage markets in recent years has generated a sharp increase in outstanding residential mortgage debt. Mortgage debt grew by the year-end 2001 to euro 320 billion. Mortgage-backed assets in SPVs accounted for only about 10% (euro 30 billion) of the total growth in outstanding residential mortgages. This can be attributed to the fact that under Dutch law any true sale of receivables must involve the notification of the borrower. Rather than potentially antagonize their customers, most lenders are loathe to do this. Also, under the Dutch civil code, there is no concept of a trust; that is the law does not recognize a distinction between legal and beneficial ownership.

The Dutch system of tax deductibility on mortgage interest payments makes buying a property particularly attractive especially with rents rapidly increasing. Just over half of Hollanders own their own homes with their mortgage debt being the fourth largest in Europe after Germany, the UK, and France. The Dutch fiscal system also allows tax deductibility on a range of costs associated with the initial purchase of a property. For the consumer, buying a house is expensive; the closing costs are approximately 25% of the price. These are composed of a value added tax of 17.5%, legal transfer costs of 6%, real estate agent fees of 1.5-2.5%, and notary fees of 1.5%. The per capita home loan debt in The Netherlands is the second highest in Europe after that of the Danes with loan-to-value ratios normally 80-85% at the time of purchase<sup>6</sup>.

The usual rule-of-thumb in the Dutch market is that one can borrow up to four times their annual income. In certain circumstances the limit is 125% of the "execution value" of the property. This amount is lower than the perceived actual value of the property and reflects the lowest amount the house would sell for if repossessed.

#### Pre-payments

Dutch mortgages usually have a maturity of 30-years with the interest rate fixed for a period of between 5- and 20-years. At the end of each fixed-rate period the mortgage rate is re-set to the market rate. Usually there are no caps nor floors restricting the interest rate adjustments at the re-set date. With regards to pre-payments, at least 10%, and as much as 20%, of the initial principal can be pre-paid within any calendar year without pre-payment penalties. Above the annual permitted pre-payment, additional pre-payments are settled at costs equal to the present value of the difference between the future monthly interest payments of a new contract and the existing mortgage. An additional fixed amount, of 6-14% of the outstanding principal balance, is added to this penalty. Hence, pre-payments in Holland are minimal.

#### CONSUMER ISSUES

##### Types of Mortgages

As mentioned above, there are two basic types of re-payment mortgages. They

are referred to in Dutch as lineaire and annuïteiten. In addition, there are two basic types of investment mortgages, savings (spaar) and investment (belegging). With the investment **security**

one pays only the

#### **interest**

on the mortgage amount and a premium into an investment fund. The return on the investment account (e.g., stocks and shares) does not relate to the note rate nor to the rate of return of the insurance company. In 1998 the market share of the investment-type mortgage exceeded 50% of the newly issued home loans<sup>6</sup>. More recently, so-called "switch mortgages" have become popular. With this product mortgagors can alternate between building up the principal amount through a savings account or by an investment account.

There is a third type of mortgage known as the non-re-payment mortgage or aflossingsvrij. This is an interest-only variety and is not available for the entire loan amount. Separately one makes arrangements to pay the mortgage balance on its due date. It is possible to combine the above mortgage forms and have a tailor-made mortgage.

Another variety is a life insurance mortgage where one pays interest only. The balance is made from a so-called "mixed life insurance policy" issued by an insurance firm. The outstanding amount is made on the final due date or when the insured has died. Instead of traditional mortgage payments, the mortgagor pays a monthly insurance premium. At the end of the policy term the life insurance premium plus interest is designed to pay off the home loan. Since no principal re-payments are made during the life of the loan, the interest portion remains constant computed on the full amount due.

Last is an interest-only home loan. At the mortgage's maturity the entire amount is due (i.e., a balloon mortgage). Interest-only mortgages are only granted if there is sufficient excess value in the collateral. At the end of the term, principal re-payment is made through the sale of the property, by taking out a new mortgage or by individual savings. Due to the higher credit risk, Dutch mortgagees never grant an interest-only loan that exceeds 75% of the foreclosure value of the underlying property. Often, this type of loan is used as a second mortgage (e.g., to finance renovation). In the second half of the 1990s, the interest-only and the investment mortgage became popular<sup>6</sup>.

In 1995 the National Mortgage Guarantee was established to encourage home ownership. It succeeded the municipality mortgage guarantee. It is an instrument of the Home Ownership Guarantee Fund Foundation (Stichting Waarborgfonds Eigen Woningen). Under certain conditions a home loan can be guaranteed against default risk.

#### **SUMMARY**

We have surveyed four different fixed-rate home loan systems. All of them with fixed-rate home loans and some government intervention in the mortgage markets. The Danish borrower has a fairly sophisticated financing decision to make between bond and cash loans (over and above the fixed vs. adjustable-rate choice). Moreover, should they choose to re-finance, they again have a complex computation to perform to validate that re-financing is really the best economic choice. Finally, the ongoing fees associated with loan servicing are relatively high. In contrast the Canadian mortgagor fully faces interest rate risk with the intermediate-term, partially-amortizing, product plus a slew of pre-penalty options which depend on frequency, amount, and so forth. Because of the high volatility of Canadian interest rates home owners there are typically paying more than home owners in the other countries we have discussed for their housing funds. While investors in Canadian mortgages are reasonably well protected,

the high costs associated with this protection are fully borne by the home owner and, potentially, the Canadian government.

In Holland the wide variety of, effectively, interest-only, home loans in connection with their tax advantages, attracts many consumers. Not only can their periodic housing payments be minimized, the attractiveness of this feature is enhanced by the tax laws. However, any buildup of equity in their property would be minimized and postponed. Hence, "home ownership" does not necessarily mean quite the same thing in Holland as in the other countries we have examined. Given the simplicity of the process, lack of interest rate risk, relatively low level of government involvement, it appears that the consumer in the best overall situation is the American one, especially with regard to pre-payments or curtailments.

In the U.S.A., because of the no pre-payment penalty nature of the standard 30-year, fixed-rate product, re-financing rates have risen to all-time highs as interest rates have fallen to forty year lows. (Re-financing is a third higher than the previous record levels set during 1997-98 with almost \$3 trillion re-financed in 2002(7).) In addition, the huge benefits that the American home owner derives from the multiplicity of competing funding systems and default insurance programs (i.e., Government, GSE, and fully private) have kept home loan rates low, and uniform, across a geographically large area for a European-sized population. The large, integrated, capital market with a variety of investment mechanisms, especially MBSs, has diversified funding sources and spread interest rate (and pre-payment) risks while the tripartite guarantee business has kept costs for home owners down and government intervention low.

#### NOTES

1 See the article by Judith Hardt, "European Mortgage Markets: Structure, Funding and Future Development," in European Mortgage Federation, 2000.

2 The Association of Danish Mortgage Banks, RealKrediradet, is a good source for general information on the Danish mortgage market (their Web address is [www.realkreditraadet.dk](http://www.realkreditraadet.dk)). There one can find English versions of their publications Danish Mortgage Bonds and Mortgage Financing in Denmark. The basic reference is the Danish Mortgage Credit Act itself.

3 Typically this is accomplished by the home owner purchasing the desired amount of outstanding MBBs, from the relevant series, themselves and turning them into the mortgage bank to diminish, or eliminate, their outstanding mortgage debt.

4 The Canada Mortgage Housing Corporation is a useful resource especially its publication on Canada's Housing System and The NHA Mortgage-Backed Securities document. Its Web address is [www.cmhcschl.gc.ca](http://www.cmhcschl.gc.ca). [www.canadamortgage.com](http://www.canadamortgage.com) has an excellent set of resources too as do several other Canadian commercial bank Web-sites such as [www.mortgage-made-easy.com](http://www.mortgage-made-easy.com) and [www.great-mortgages.com](http://www.great-mortgages.com) (the Ontario Mortgage Centre Ltd.)

5 Taff, L. G., Investing in Mortgage Securities, is the main source of the material on the American market. St. Lucie Press, 2003.

6 The Netherlands Bankers' Association and the Nederlandse Bankeirsverenignin Web sites were very useful sources of information for this section.

7 Washington Post, December 27, 2002, pg. E1.

Soula Proxenos is Managing Director of the International Housing Finances group at Fannie Mae. L. G. Taff is the internal Senior Business Consultant

at Fannie Mae.

## **THIS IS THE FULL-TEXT.**

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**106/9/11 (Item 11 from file: 9)**

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**Using a Cayman Islands vehicle for Japanese securitizations: Cayman Islands special purpose companies are common in Japanese structured finance transactions. David Egglshaw, Skip Hashimoto of Walkers SPV Limited review recent market trends in part 1, Wayne Panton and Jonathan Culshaw of Walkers explain the continued benefits of using Cayman offshore vehicles in part 2. (Cayman offshore structures).**

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### **TEXT:**

#### **Part 1**

It is not difficult to find negative views on Japan these days. Little has changed since the burst of the economic bubble more than 10 years ago. The constant preaching as to whether the so-called economic band-aid should be removed slowly or quickly has progressed from bad to worse. Political turmoil and scandals continue and with the third recession in a decade upon us, few have thrived over the years. However, there is one financial tool that has not changed and has in many ways thrived over this span of time--that is the use of structure finance involving Cayman Islands special purpose companies (SPCs).

Until the development of the Japanese version of the Cayman SPC--also known as the TMK (tokubetsu mokuteki kaisha)--in September 1998, the use of Cayman SPCs and, in particular, the double SPC structure, was more or less the norm in the majority of Japanese securitization transactions that utilized offshore vehicle.

At its inception, when compared with the Cayman SPC, the TMK was strongly criticized as being user-unfriendly and time consuming. Hence, it was not

until further amendments to the Japanese SPC law in late 2000 that the TMK became more efficient and began to appear in more structures. However, the TMK has still not become the promised 'holy grail' because the requirement for a Cayman SPC (owned by a charitable trust) has remained; not only for structures that involve a TMK, but also for other common structures that have recently utilized a Yugen Kaisha (YK) or Limited Liability Company. YK structures generally involve the Yugen Kaisha borrowing monies from a lender and accepting contributions from a Tokumei Kumiai (TK) investor that acquires the beneficial interest in real estate or other assets. This trend of using the Cayman SPC essentially as a holding company in both TMK and YK transactions continues to remain a viable choice for its ease of use and for ensuring both off-balance sheet and bankruptcy remote status. An important recent trend has been the growing number of smaller, domestic originators that are less familiar with structured finance transactions and uncomfortable working with English language documents or overseas-based, English-speaking service providers. And to make matters more difficult, the requirements from a due diligence perspective brought on by new anti-money laundering legislation in the Cayman Islands (as well as most other leading offshore centres), has in some rare cases prevented transactions from closing in a timely manner. Service providers should expect not only higher competition, but also the requirement to show more commitment and flexibility. The Cayman Islands service provider in particular, is required to provide comfort locally as the options to go elsewhere have grown.

The developments make it a necessity for a Cayman service provider to demonstrate not only a more reliable and responsive service, but also to provide services within the clients' own environment, and, if possible, language. This has been seen by the number of law firms, both Japanese and foreign, which are increasing their capacity and capabilities both via recruitment, mergers and joint ventures. The increasing number of options Japanese originators have when choosing between a Cayman versus domestic structure has put pressure on all offshore service providers to prove their willingness and capabilities to show which is the better route to take.

More recently, it seems the Japanese structured finance market has appeared to mature, and because of this maturity there have been differences in the way deals are won--and lost. Ultimately, with originators facing the task of choosing between an increasingly large number of arrangers, law firms and service providers, it's only natural that everyone will begin to experience narrower margins and increasing pressure to reduce fees. As the offshore service provider's role in the Japanese structured finance market has been commoditized over the past few years, an environment has been created where not only fee levels will determine who wins mandates, but also the quality and motivation to provide a better service.

The Cayman Islands SPC has been used in the Japanese market for nearly two decades and with both structured finance transactions and investment funds continuing to use the Cayman Islands, it is fair to say that the Cayman Islands remains the offshore domicile of choice.

## Part 2

### Structured finance in the Cayman Islands

The essential element of a structured finance transaction is the conversion of various types of assets into marketable securities.

Transactions often involve the creation of a special purpose company (SPC), set up for a specific purpose, in an offshore jurisdiction such as the Cayman Islands, to hold **assets** and/or issue securities to investors. In its simplest structure, the offshore SPC will **purchase** a pool of receivables or other **assets**

generated by the originator of the transaction that will be seeking to raise cash in the international capital markets to fund the growth of its business. The SPC will fund its purchase by the issue of securities to investors. The SPC's obligations to the investors in relation to the securities will be secured by the SPC's rights in respect of the **purchased asset** pool.

Often the pool of receivables can be repackaged in such a way to create a quite different credit or revenue stream profile from the underlying asset pool. Examples of the results that financial engineering of the more complex structures can achieve include:

- \* the use of interest **rate** or currency hedging arrangements with counterparties converting fixed **rate** payments into **floating rate** payments, currencies into different currencies, or providing cap or collar arrangements;
- \* having a monoline insurer wrap a **note** issue by issuing a guarantee to the **noteholders** providing that in the event of any failure of the receivables to service the noteholder debt, the monoline insurer will make up the deficit ensuring the notes will attract the monoline insurer's credit rating;
- \* the use of credit enhancement in respect of which a pool of sub-investment grade debt can be repackaged into several tranches of debt at the note level, the most senior of which can achieve a higher rating than the underlying pool as a result of over-collateralization;
- \* use of contractual subordination or debt/preferred share structures under which security holders agree among themselves varying risk reward profiles for each category of security, the more deeply subordinated notes or preference shares securing a greater return in exchange for accepting the risks inherent in being the last to be paid out in the relevant transaction payment waterfalls.

#### Use of an offshore SPC

The use of an offshore SPC in such structures allows the transaction assets to be moved away from the originator and its associated credit risks to a clean entity with no operating history. This entity does not enter into any other transaction, so the obligations it owes are solely those to the transaction parties and are clearly set out in the transaction documents.

The vehicle achieves insolvency remoteness by agreeing to enter into no other business and receives the benefit of limited recourse and non-petition covenants from all parties to the transaction that can then rely on the fact that any enforcement of rights on default will be carried out in an orderly manner in accordance with the transaction documents. Shares of this entity are usually held pursuant to the terms of a charitable trust to provide independence and an off-balance sheet treatment from the originator. Autonomous offshore resident directors are provided to ensure a real degree of independence from the originator and to further remove any risk that the company will be consolidated to the originator's group.

#### Use of Cayman SPCs in Japanese transactions

From a Cayman Islands perspective there have been a number of receivables financing transactions coming out of the Japanese market recently, particularly for the refinancing of receivables generated by Japan's consumer finance companies. Japanese legislation passed in the late-1990s, such as the Perfection Law (1998), clarified the nature of the security that could be provided in such transactions. Consumer finance companies

searching for other sources of finance following the liquidity problems of the Japanese banks have securitized large portions of their loan portfolios using Cayman SPCs to issue notes to investors. There have also been collateralized **debt obligation** (CDO) transactions from Japan, but the expected explosion of this market is still awaited.

#### Cayman advantages

The Cayman Islands have become the first choice location for the creation of SPCs for structured finance transactions. There are advantages of using Cayman as opposed to other offshore jurisdictions or the use of offshore-style entities created by legislation in onshore jurisdictions such as the TMK law of Japan:

- \* The Cayman Islands is an Anglo-Saxon jurisdiction where the principle of freedom of contract is paramount and bonafide contractual relationships are not generally subject to judicial or governmental interference. Governmental consents or approvals are not required in connection with an SPC's participation in any particular securitization transaction or the changes in any plan of securitization or the company's constitutional documents. Instead, the requirement for transaction party and noteholder consents to amendments can be determined at the outset of the transaction and can be included in the transaction documents. US investors are familiar with the law of Anglo-Saxon jurisdictions such as Cayman and are therefore more comfortable buying securities issued by Cayman vehicles.

- \* There is no limit on the type of asset classes that can be acquired by a Cayman SPC or the types of notes or bonds that can be issued by that entity;

- \* Speed and professionalism. The Cayman SPC can be set up within one working day at express rates. Many of the service providers and attorneys on the Island have extensive experience in working in the main financial centres such as London, Tokyo and New York, are proactive and appreciate the need for the rapid closure of transactions.

- \* The Cayman Islands does not impose any restriction on the appointment of service providers to Cayman SPCs and the trustees, agents and administrators of transactions can be located in the jurisdiction that is most convenient for the transaction.

- \* Cayman does not impose its own accounting standards and to the extent that accounts need to be prepared for an SPC, they can be prepared using the most suitable international accounting principles taking into account the jurisdiction of the law governing the receivables.

- \* There is no statutory minimum capital for the establishment of an SPC but a minimum of \$ 1,000 share capital would normally be recommended. This is a much lower figure than the equivalent minimal capitalization of other jurisdictions.

- \* Cayman Islands legislation has been continuously updated to reflect the requirement of complex international finance transactions. In particular, netting, subordination and set-off arrangements are recognized by express statutory provisions and will be enforced both pre- and post-insolvency.

- \* Transfer by way of continuation--Cayman Islands law allows a Cayman Islands SPC to quickly and cheaply relocate in another jurisdiction to the extent that changes in tax or other laws adversely affect the tax or regulatory treatment of a specific transaction.

#### Overview of the jurisdiction

The financial services industry in the Cayman Islands has developed over



nearly four decades into one of the most professional and sophisticated offshore centres. The Cayman Islands has a constitutional relationship with the UK (being a British Overseas Territory), and together with its prudent economic policies and strong financial services sector, results in the Cayman Islands enjoying an AAA sovereign risk rating. Cayman also has autonomy in respect of domestic matters such as taxation and financial regulation.

The Cayman Islands has a robust judicial system through the Grand Court, which has ultimate appeal to the Privy Council of the House of Lords. This results in a level of predictability in relation to Cayman Islands law, and inspires confidence from investors and arrangers. All of the leading accountancy firms are represented in the Cayman Islands. The jurisdiction also has excellent professional trust and corporate administration companies that act as trustees and provide directors and other corporate services to SPCs.

Legal framework

The Cayman Islands has a modern and flexible framework of commercial legislation. While certain statutory provisions may differ from English law providing greater flexibility, the central issues of corporate power, directors' fiduciary duties, corporate personality and limited liability are, in all substantive respects, the English common law. At the same time, the Cayman Islands' commercial legislation has evolved to accommodate the complex structures found in international financings.

Examples of particular ways in which Cayman law is suited for international financing transactions include:

Contractual subordination

Under the Cayman Islands Companies Law, contractual subordination is given statutory force. This means that both those structuring transactions and creditors can be confident that a priority of payments agreed by a Cayman Islands SPC is enforceable by creditors even if those creditors do not have the benefit of an associated **security interest**.

This ensures that a payment waterfall will bind all creditors even where some creditors may only have an unsecured and subordinated interest.

Financial assistance

Unlike position in many other jurisdictions provision of financial assistance for the purchase of a company's shares in the Cayman Islands is not unlawful, although the directors must ensure that the transaction is demonstrably for the material benefit of the company. This makes Cayman an attractive jurisdiction for use in whole business securitizations.

Preference shares

The ability of a Cayman Islands SPC to pay dividends on shares out of share premium, and to redeem shares out of capital and share premium, enables transactions to be structured whereby an instrument issued that has the legal characteristics of equity can have the economic substance of debt. This is achieved by arranging for shares to be issued with a par value as a very small proportion of their issue price, thereby ensuring that the majority of the proceeds are entered into the share premium account of the Cayman Islands SPC. The resulting effect is that dividends do not need to be paid out of company profits but can be quasi-debt payments in the amount of the notional interest payments payable to investors. It is as easy for preference shares to be repaid as it is for debt. Structuring of this nature is not readily achieved in other offshore jurisdiction where redemption of shares and the payment of dividends are subject to greater restrictions.

#### Creditor-friendly legal system

Cayman Islands Law is one of the most creditor-friendly of all jurisdictions and is therefore ideally suited to structured finance transactions. As previously stated, contractual netting, set-off and subordination provisions are all recognized by Cayman legislation and given effect both before and after the commencement of any liquidation. There are no provisions for corporate rehabilitation such as the English administration procedure or US Chapter II proceedings that have the effect of freezing secured creditors rights and no general concept of an insolvency stay. Liquidators cannot disclaim onerous contracts as in the UK and other jurisdictions. As the jurisdiction does not levy a tax on SPCs and an SPC will have no employees, only unpaid Cayman Island government charges--which should be minimal--will be preferred to the claims of secured transaction creditors on insolvency. In relation to fraudulent preference rules, these are restricted to apply only to a limited six-month pre-insolvency period where a company has evidenced a dominant intention to prefer one creditor to another at the time of the granting of the relevant preference.

#### No re-characterization or consolidation

Except in the case of fraud, the Cayman Islands courts will not step in to re-characterize transactions. Heavily subordinated debt with the economic characteristics of equity will not be re-characterized as equity and so subordinated creditors have certainty that their securities will be have the contractual rights as creditors of the SPC contemplated in the transaction documents. Again, except in the case of fraud, and providing the SPC is separately managed by a local administrator in the Cayman Islands, Cayman Islands law will also respect the separate legal personality of an SPC and will not seek to consolidate the SPC with the originator of the transaction to allow the creditors of the originator to claim against the SPC or vice versa.

#### Non-intrusive regulation

There are no restrictions on an SPC in the Cayman Islands lending, borrowing or issuing debt securities. In particular, none of these activities require any banking or other financial services registration or licensing.

#### Anti-money laundering

The Cayman Islands has earned a good reputation throughout the world as a cooperative jurisdiction in the fight against money laundering and criminal tax evasion.

By signing an advance commitment letter to the Organization for Economic Cooperation and Development in May 2000, Cayman avoided a listing on the OECD's blacklist of jurisdictions practising harmful tax competition. In 2002, the international Financial Action Task Force (FATF) on money laundering praised the country's efforts to conform to FATF's 40 recommendations. Cayman has adopted a code of good practice governing the prevention of money laundering, including the issuance of money laundering regulations and amendments to Cayman's Monetary Authority Law and Proceeds of Criminal Conduct Law.

#### Tax analysis of a structured finance transaction

A structured finance SPC must be set up to be tax neutral and an analysis of the following key tax aspects needs to be made in respect of each transaction:

- \* SPC corporation tax in the jurisdiction in which the company is incorporated;
  - \* SPC corporation tax in any other jurisdiction in which, by virtue of its activities, it is deemed to be doing business;
  - \* withholding taxes due with respect to payments made by the SPC;
  - \* withholding taxes with respect to the payments received by the SPC; and
  - \* other relevant taxes, such as stamp duty.
- Tax treatment of Cayman SPCs

There are no direct taxes in the Cayman Islands. The usual form of corporate vehicle used in a structured finance transaction--an exempted company--is free from any form of income tax, capital gains tax or corporation tax, and no withholding tax is imposed by the Cayman Islands on any cash flows. This is supported by an undertaking given by the government of the Cayman Islands that companies with exempted company status will remain tax-free for a period of 20 years. This undertaking will generally be extended at the end of the 20-year period for a further period of 10 years if the particular transaction requires. The use of Cayman Islands administrators to manage and control the company from the Cayman Islands mitigates the risk that an SPC will be brought onshore by local tax regimes. Documents may be executed outside of Cayman by attorneys appointed by the Cayman SPC, and provided those documents are not brought into the Cayman Islands, they will not attract any stamp duty.

#### Administration

An SPC can be set up in less than 24 hours. It must have a registered office in the Cayman Islands, but there is no longer any requirement for an annual meeting of the board of directors to be held in the Cayman Islands. The annual reporting requirements are minimal, consisting of statements signed by a company director or secretary that the SPC has conducted its operations mainly outside the Cayman Islands and there is no Cayman requirement for audited accounts to be prepared. Set up costs for an SPC remain low, as do the fees of the local corporate administrators and law firms. The only fees payable to the Cayman Islands government are based on the SPC's authorized share capital. For the vast majority of SPCs this should be only \$574 per year.

#### DAVID EGGLESHAW

David Egglshaw qualified as a member of the Institute of Chartered Accountants in 1992. After training with one of Jersey's leading accountancy firms, he joined the Deutsche Bank Group in 1994 and went on to head the corporate services department at Deutsche Bank in Cayman until he joined Walkers SPV as managing director in October 2001. Over the past eight years he has been involved in the establishment and administration of over 250 CDO transactions, pioneering Japanese asset securitization transactions, some of the highest volume repackaging programmes, and many asset finance transactions. He has spoken at a number of conferences and seminars on special purpose vehicles.

#### SKIP HASHIMOTO

Skip Hashimoto graduated from Jochi (Sophia) University in 1996 with a BA degree in International Economics and joined the Deutsche Bank Group in Japan. He initially worked in Deutsche Securities as the research associate for the chief economist and strategist. In 1999, he moved over to Deutsche

Asset Management to head the Deutsche Bank Offshore Liaison Office, which worked exclusively with the offices in Cayman, Jersey and Ireland. He has extensive experience working with investment banks, providing support to clients involved in a variety of capital markets transactions, including securitizations, CDOs and cross-border transactions. In addition, he has worked extensively with both mutual and hedge fund managers to assist with a variety of fund administration requirements.

WAYNE PANTON

Partner Wayne Panton obtained his law degree from the University of Liverpool and did his professional training at Walkers. He was admitted as an attorney in the Cayman Islands in 1988 and since then has practised all aspects of corporate and commercial law. He specializes in the areas of capital markets and structured finance, as well as general corporate law and asset finance. Together with Ian Ashman, Wayne Panton heads the firm's capital markets and structured finance team. He is a member of the government's Shipping Sector Consultative Committee and is a notary public.

JONATHAN CULSHAW

Senior associate Jonathan Culshaw obtained his law degree at Bristol University, England, and was admitted as a solicitor in 1995 after completing his training in London with Freshfields Bruckhaus Deringer. He then remained with Freshfields in the banking and structured finance group. In 1997, he was seconded to the legal department of Citibank where he worked in the European legal department on a range of banking and project finance matters. In 1998, he was admitted as a solicitor in Hong Kong. He joined Walkers in 2001 and works on a range of capital markets and structured finance matters, as well as general corporate transactions in the firm's corporate and international finance department.

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**Concept Terms: All company; Orders**

**Geographic Names: British Islands: Bermuda, Br.W. Indies, Br. Virgin Is., Cayma (BRI); Caribbean & West Indies (CAE); Caribbean & West Indies (CAEX); Japan (JPN); Pacific Rim (PARX); Southern & Eastern Asia (SSAX)**

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**106/9/12 (Item 12 from file: 148)**

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**Fitch Rates Zais Investment Grade Limited V.**

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Fitch Ratings assigns the following ratings to Zais Investment Grade Limited V:

- US\$285,000,000 class A-1 senior secured **floating**-rate notes, 'AAA';
- US\$25,000,000 class A-2 senior secured fixed-rate notes, 'AA';
- US\$37,000,000 class B-1 senior secured **floating**-rate, 'A-';
- US\$14,000,000 class B-2 senior secured fixed-rate **notes**, 'A-';
- US\$40,000,000 subordinated **notes**, 'BBB-';
- US\$7,000,000 type I composition obligations, 'BBB'; and
- US\$4,000,000 type II composition obligations, 'BBB'.

The ratings of the class A notes address the likelihood that investors will receive full and timely payments of interest on scheduled interest payment dates, as well as the stated balance of original principal by the final payment date. The ratings of the class B notes address the ultimate payment of interest and principal by the final payment date, as well as any compensating interest on deferred interest amounts. The ratings of the subordinated notes address the likelihood that investors will receive the stated balance of the original principal by the final payment date.

The ratings are based upon the credit quality of the underlying assets, the credit enhancement provided to the capital structure through subordination and excess spread, and the strength of Zais Group LLC as the investment manager.

The proceeds from the notes will be used to purchase a portfolio of predominantly all collateralized **debt obligation** securities (CDOs). At closing, approximately 60% of the total portfolio had been **purchased**. The ratings of the underlying **assets** were used to help assess the credit quality of the collateral. As per the indenture, the investment manager must maintain a weighted average Fitch Factor of 23 which falls between a 'BBB-' and 'BB+' rating. Fitch focuses on a thorough evaluation of the investment manager, the credit quality of the underlying assets, certain structural provisions and maintenance tests established by the governing documents, and modeling exercises that stress the portfolio with a variety of **default** and **interest** rate scenarios designed to simulate varying economic conditions.

In addition to the rating of the notes referenced above, Fitch assigns a 'BBB' rating to the composition notes. The rating of the \$7,000,000 type I composition notes address the likelihood that investors will receive the stated balance of principal by the final payment date. The rating of the \$4,000,000 type II composition notes address the ultimate payment of interest and principal by the final payment date, as well as any compensating interest on deferred interest amounts. The ratings are based upon the credit quality of the underlying assets that comprise the composition obligations.

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**106/9/13 (Item 13 from file: 9)**

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**France: regaining the momentum, unlocking the potential.**

**International Financial Law Review , v 21 , n 10 , p SSSSSS71**

**October 2002**

**Document Type: Journal ISSN: 0262-6969 ( United Kingdom )**

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**TEXT:**

Having benefited from a dedicated legal framework for more than a decade, France is one of the oldest European securitization markets. However, compared to other jurisdictions (such as Italy or Spain), which only recently gained similar regimes, the French market may be perceived as having lost some of its lead. In addition to the adverse impact of troubled economic conditions, various concerns affect the perception of foreign observers and the appetite of local originators. Notwithstanding these obstacles, a more detailed analysis of the market's structure shows that favourable perspectives still exist: promising asset classes await exploitation and new financial solutions confirm that the innovative trend seen in the recent past has not vanished. This article aims to describe in more detail this paradoxical phenomenon.

**THE FRENCH LEGAL FRAMEWORK: A BRIEF REMINDER**

The introduction in France of a bankruptcy remote securitization vehicle, the fonds commun de creances (FCC) dates back to 1988 when the law of December 23 1988 on securitizations and the decree of March 9 1989 (referred to in this article together as the Law) were brought into effect. Originally, the Law was tailored solely to meet the needs of financial institutions: other potential originators had no choice but to put in place structures involving non-French special purpose entities (SPEs). The recourse to these offshore securitizations being perceived as too onerous and risky, only a handful of major French corporates opted for this solution until 1998, while others remained frustrated. Thanks to a progressive widening of the Law's remit, the number of transactions in which FCCs were elected as SPEs increased gradually. Offshore solutions remain available as an alternative, the structure chosen depending upon, among other things, the characteristics of the underlying assets and technical constraints borne by the parties involved. For example, instead of being acquired by an FCC, trade receivables can be transferred outside of France by the originator to the benefit of an EC-based credit establishment (such as a Dutch bank), which will act as intermediary vehicle and onward seller towards the final purchaser.

**MARKET PARTICIPANTS: WHAT ARE THEIR LOCAL STRATEGIES?**

A number of French financial institutions regularly tap the securitization

market. Among them, BNP Paribas' subsidiaries, Cetelem (consumer loans) and UCB (residential loans) are the longest-standing recurrent originators. Both companies launched master trust FCC structures (Master Noria and Master Domos) which both issue new series of FCC units every year.

On the corporates' side, while most of them issue only on a one-off basis, some major industrial groups (such as PSA, the French car manufacturer) now consider that their securitization programmes can be used as permanent financing tools, in addition to credit facilities or commercial paper issues. On the arrangers' side, the competition is fierce: French banks play a dominant role, while the local arms of foreign banking institutions try to leverage locally their global presence to gain a more significant market share.

#### MARKET FIGURES: GROWTH IS STILL THERE

Compared to the rapid growth of the more recent Italian, German and Spanish markets, the development of the French market may be perceived not to be as explosive as anticipated only a couple of years ago. This being said, recent transactions show that several segments of the French market are still growing.

- \* The Commercial Mortgage Backed Securities (CMBS) market continues to experience a surge of issuance caused by the outsourcing needs of corporates, such as ProLogis, EDF and Thales, which all externalize their real property assets with a view to achieving their debt-reduction strategies.

- \* The European Collateralized **Debt Obligations** (CDOs) market proved to be the fastest growing asset class for the first half of 2002. In France, CDOs make up a significant market share of more than 25%. Interestingly, active originators of 2001, such as Axa and BNP Paribas, continue to build their presence in this market.

- \* According to Moody's, France represented 22% of the European Asset Backed Securitizations (ABS) market as at May 31 2002, up from 11% in 2001. Consumer credits and auto loans-backed transactions appear to be developing rapidly. The presence of repeat issuers, such as Cofidis, Socram or PSA indicates that the market has now matured.

#### MARKET CONCERNS: IMPACT ON TRANSACTIONS

Some of the concerns listed below are not uniquely French, but their impact may be more significant in France than in other countries.

##### Regulatory concerns

The uncertainties deriving from the pending discussions of the Basel II Committee have caused fears in France. Indeed, despite the general friendly principles set forth by the Committee, some of the measures envisaged will have an adverse effect. Notably, the use of an adjustment factor in the weighting scale applicable to ABS securities is seen as a discriminatory measure that will penalize asset-backed securities compared to corporate securities. Fortunately, the Committee announced in July an extension of the agenda initially envisaged, with the new system now to be put in place before the end of 2006.

However, regardless of the fact that the Basel II consultation process is continuing, the Commission Bancaire (the French banking supervisory authority) took the view that new rules had to be put in place with immediate effect. Accordingly, it published a notice saying that, from May 1 2002, the amount of net equity allocated to these transactions had to be adjusted by reference to the risk exposure of French banks, and no longer

solely dependant upon their operational role. This position has been perceived by professionals as an handicap to the French market and a direct threat to the global market, should foreign regulations and the Basel II Accord finally mirror this notice.

#### Legal concerns

The Law has created a sound and stable legal framework, which provides originators and arrangers with a high level of certainty when they seek to structure an FCC-based transaction. However, some other local regulations still limit the further expansion of this technique, the most notable obstacles being those imposed by French insolvency laws, which render difficult the securitization of future receivables, despite the fact that this is expressly permitted by the Law. A prompt amendment of these regulations being unlikely, complex structures must be put in place to bypass these constraints. More favourably, the Council Regulation (EC) n(degrees)1346/2000 on insolvency proceedings having a cross border effect, which entered into effect on May 31 2002, now offers a clarified framework (although it does not harmonize insolvency laws across Europe) which will benefit pan-European transactions, notably those originated from France.

#### Accounting concerns

It is now months since the collapse of Enron, but the adverse effects of the scandal remain perceivable. Many arrangers remark that it has caused transactions to be put on hold. Solving the accounting issues relating to securitizations is seen by many specialists, notably the analysts of Standard & Poor's, as one of the big future challenges for the market.

#### Structural concerns

Some of the main concerns caused by the structure of the French market may also help explain its present status.

- \* The awareness of corporates as to the variety and value of their securitizable assets still needs to be developed. Numerous potential first-time originators exist, but they still need to be reassured and educated.

- \* Monoline insurers are still observing the French securitization market, their participation as yet remaining rare. The recent creation of CIFG (the monoline-arm of the French-based CDC Ixis) may be a sign that things are on the move.

- \* The public sector is still absent from the market, a notable contrast with Italy or Greece. Bearing in mind the recent views of Eurostat regarding the Italian state's securitization programme, the participation of the French public sector could add significant depth to the market.

#### MARKET PERSPECTIVES: THE BEST IS YET TO COME

Despite the disappointing growth of the market and the concerns summarized above, there are still excellent prospects for the French market. This is for at least two reasons: firstly, interesting classes of assets are available and await exploitation; secondly, innovation has not deserted the market.

#### SOME FASHIONABLE ASSET CLASSES

##### Industrial and commercial real property

Commercial-mortgage-backed securitizations (CMBS) are experiencing a boom in Europe with France being part of that trend. Confronted by severe market



conditions, corporate entities are forced to refocus on their core businesses and seek to dispose of their real property assets. If they opt for a securitization (instead of a straightforward sale), various legal and tax obstacles require that a two-tiered structure be designed: a sale of the real property assets to dedicated SPEs (for example, 54 entities were involved in the 458 million (euro) Dyonisus CMBS originated by EDF) and their subsequent leaseback to the seller is implemented. Such acquisitions are financed by non-recourse/secured loans provided to each SPE by a bank. The receivables and all ancillary **security interests** under the loan are transferred pursuant to the Law to an FCC, which in turn finances this purchase by way of the issue of units. The chart provided gives for a simplified example of a CMBS deal involving an FCC as pivotal vehicle.

#### Private banking receivables

French private bank Odier Bungere Courvoisier (OBC) completed a landmark transaction when the 200 million (euro) **floating rate notes** issued by Etoile 2002-1 BV successfully tapped the market in May this year, with the most senior tranche gaining a AAA rating. Thanks to a synthetic structure, OBC managed to securitize for the first time a portfolio of loans to high net worth individuals. Among the interesting features of this transaction was the fact that the data relating to the individuals had to be protected. The regulatory capital relief so gained by OBC will certainly encourage other private banking institutions to replicate this structure.

#### Project finance loans and bonds

Securitization techniques, notably in their synthetic form (Project CDOs), may be seen by the project finance sector as the next frontier to be conquered. On the sponsors/borrowers' side, Project CDOs will broaden the scope of the financing solutions available, especially at a time when a relative credit crunch is prevailing. On the lenders' side, the loans made available to projects could usefully be securitized, notably by the French banks that are active in this area, since they all need to optimize their risk exposure, profitability and regulatory capital relief. For investors, Project CDOs also represent an efficient way to diversify the risks inherent in individual project loan/bond investments.

#### Inventories

According to Moody's, there is a growing demand in Europe for ABS transactions backed by inventories of industrial companies. The first transactions in the French market concerned two Champagne producers: the first was the now famous 396 million (euro) Marne et Champagne deal closed in 2000 and the second was FCC Cote des Noirs, a 55 million (euro) transaction backed by the inventory of Delbeck Bricout Martin completed at the end of 2001. So far, inventory securitizations have been backed by luxury goods (such as the inventory of diamonds backing the Rosy Blue Carat transaction), since these assets maintain or increase their value over time. These advantages can also be delivered by other types of inventories, such as commodities or timber. There seems to be the potential for a new generation of inventory securitizations waiting to be unlocked.

#### AN INCREASED RANGE OF INNOVATIVE SOLUTIONS

##### Pan-European structures

Strictly speaking, pan-European securitizations are not new technical solutions. However, be it a CMBS public-listed transaction (such as the 356 million (euro) **floating rate note** Pan-European Industrial Properties Series II issue secured by collateral

comprising a portfolio of 39 facilities located in five countries) or an ABS multiple class deal (such as the auto loans receivables portfolios held by Fiat Credit France and Tarcredit over Spanish and French debtors, as securitized through the 800 million (euro) European Auto Securitization 2002 vehicle), the variety of legal and tax regimes involved renders the structuring of these transactions particularly complex. FCCs are well adapted to participate as SPEs in transactions based on trade, auto loans or consumer credit receivables.

#### Whole-business securitizations

Since January, a flood of articles relating to whole-business securitization (WBS) has appeared in the French press. Despite the fact that during the same period, WBS suffered a significant downturn in volume of issuance, these articles indicate at least that there is a marketing interest for this technique. Most of the authors praise the effectiveness of this solution as it is used in the UK (for example in the UK Hospitals transaction) or Germany (the recent Tenovis securitization), but admit that its adaptation in France will be somehow problematic. Indeed, although suitable French corporate entities enjoying stable and predictable cash flows over a long period of time are relatively easy to find, some specifics of the legal framework prevent a mere pro forma duplication of whole-business structures from abroad.

The first notable obstacle consists of the absence of a **security interest** providing for legal effects similar to the English-law fixed and floating charge. The second hurdle derives from French bankruptcy law, which is essentially court-led and debtor-friendly. With no equivalent to the UK receivership existing in France, upon the collapse of the company whose assets are used as collateral to the WBS, there is no possibility for its creditors to jump into the driver's seat. Instead, they have to follow the insolvency proceedings' agenda including formalities as managed by the judicial administrator under the local court's control. This does not sound too appealing for foreign institutional investors. This pessimistic view is however to be tempered: many French legal concepts have proved to be flexible enough to permit the completion of innovative transactions.

#### Asset Backed Commercial Paper/ABS deals

Securitization experts try to adapt to the French market a new solution designed to fill the financing gap caused by difficult market conditions. This technique consists of securitizing short-term assets (such as trade receivables) by way of an asset backed commercial paper (ABCP) transaction, which will in turn be refinanced by an ABS deal. Adopted in 2001 for Telecom Italia, this solution could be well-suited to transactions involving telecoms companies. However, various technical hurdles still need to be resolved, such as putting in place effective protection against the commingling risk or early amortization of the ABCP programme.

#### Hybrid cash/synthetic arbitrage CDOs

Will static CDOs soon be out-of-fashion? Part of the answer will depend upon the interest shown by Axa's competitors to its 210 million (euro) Jazz CDO I launched earlier this year. This transaction is interesting because its innovative structure combines cash flow CDO elements (**purchase** of a collateral consisting of investment grade **assets** out of the proceeds of the notes issued) and synthetic CDO elements (provision of a protection through a CDS portfolio). Another first saw Deutsche Bank acting as lender to the issuer of a 1.7 billion (euro) revolving credit facility, the advances notably being applied to make the initial payment due for the purchase of a total return swap. Standard & Poor's indicates that similar blend transactions will be launched shortly.

## CONCLUSION

A (too) hasty examination of the half-year figures concerning the French securitization market would lead foreign professionals to conclude, incorrectly, that France is not an interesting battlefield. If one must admit that the country's recent performance is a bit disappointing, a more careful analysis of the market's characteristics may direct professionals to a different conclusion: the size and pre-eminent role of the French economy in the EU, the financial sophistication of its banks/corporates and the dynamism of certain asset classes are competitive advantages that need to be further developed. Blue and promising skies may well not be far away. Many market participants (including the rating agencies) report that the pipeline is well loaded with a number of large or innovative transactions which have been put on hold until now.

Luc Rentmeesters is a partner in the Banking & Finance department of Allen & Overy. He has extensive experience of banking and finance transactions, his practice encompassing a wide range of cross-border financial matters. Luc has acted as lead counsel for arrangers and credit enhancers involved in domestic and international structured finance transactions and securitizations. Luc is an Avocat a la Cour and a member of the Paris Bar.

Pierre Tallot is a senior associate in the Banking & Finance department of Allen & Overy. His practice encompasses all types of structured finance transactions and notably securitizations. Pierre holds a MBA, a doctorat en droit (PhD), and is an Avocat A la Cour and member of the Paris Bar. He regularly publishes press articles relating to business law.

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**Company Names: CETELEM; UCB SA**

**Industry Names: Banking; Chemical; Financial services**

**Product Names: Chemicals and allied products (280000); National and state commercial banks (602000)**

**Concept Terms: All company; All government; All market information; Corporate strategy; Market size; New laws**

**Geographic Names: Belgium (BEL); European Union (EUCX); France (FRA); Western Europe (WEEX)**

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**106/9/14 (Item 14 from file: 610)**

**00724299 20020603154B9871**

**Fitch Rates Coast Investment Grade 2002-1, Ltd. CDO**

**Business Wire**

**Monday , June 3, 2002 15:20 EDT**

**Journal Code: BW Language: ENGLISH Record Type: FULLTEXT Document Type: NEWSWIRE  
Word Count: 314**

**Text:**

NEW YORK, Jun 3, 2002 (BUSINESS WIRE)

- Fitch Ratings assigns the following ratings to Coast Investment Grade 2002-1, Ltd. CDO:

-- US\$246,900,000 class A **floating-rate** senior secured **notes**, 'AAA';  
-- US\$24,000,000 class B **floating-rate** senior secured **notes**, 'AA';  
-- US\$26,000,000 class C-1 **floating-rate** senior secured **notes**, 'A-';  
-- US\$3,400,000 class C-2 **fixed-rate** senior secured **notes**, 'A-'.

The ratings of the class A notes address the likelihood that investors will receive full and timely payments of interest on scheduled interest payment dates, as well as the stated balance of original principal on the final payment date. The ratings of the class B, C-1 and C-2 notes address the likelihood that investors will receive ultimate and compensating interest payments, as well as the stated balance of the original principal on the final payment date.

The ratings are based upon the credit quality of the underlying assets, the credit enhancement provided to the capital structure through subordination and excess spread, and the strength of Coast Asset Management, L.P. as the investment manager.

The proceeds from the notes will be used to purchase a portfolio of predominantly all collateralized **debt obligation** securities (CDOs). At closing, approximately 50% of the total portfolio had been **purchased**. The ratings of the underlying **assets** were used to help assess the credit quality of the collateral. Per transaction guidelines, the portfolio must maintain a weighted average rating factor of 24 which falls between a 'BBB-' and 'BB+' rating. Fitch's evaluation of the transaction focuses on a thorough evaluation of the investment manager, the credit quality of the underlying assets, certain structural provisions and maintenance tests established by the governing documents, and modeling exercises that stress the portfolio with a variety of **default** and **interest** rate scenarios designed to simulate varying economic conditions.

CONTACT: Fitch Ratings  
Charles R. Kassouf, 212/908-0271  
Elizabeth Russotto, 212/908-0585  
Matt Burkhard, 212/908-0540 (Media Relations)

URL: <http://www.businesswire.com>

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Company Names: B; CHOICEONE FINANCIAL SERVICES INC; COAST ASSET MANAGEMENT CORP INC; MEDIA RELATIONS GROUP; MEDIA RELATIONS INC; MEDIA RELATIONS LTD

Product Names: FINANCIAL SERVICES; INVESTMENT

Event Names: CORPORATE FINANCIAL DATA; INVESTMENT; STOCKS AND SHARES

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106/9/15 (Item 15 from file: 610)

00687802 20020328087B0859

Fitch Rates Liabilities of ZAIS Investment Grade Limited IV

Business Wire

Thursday , March 28, 2002 16:55 EST

Journal Code: BW Language: ENGLISH Record Type: FULLTEXT Document Type: NEWSWIRE

Word Count: 350

Text:

NEW YORK, Mar 28, 2002 (BUSINESS WIRE)  
- Fitch Ratings assigns the following  
ratings to ZAIS Investment Grade Limited IV:

--US\$535,000,000 class A-1 senior secured **floating-**  
**rate notes** 'AAA';

--US\$38,000,000 class A-2a senior secured **floating-rate**  
**notes** 'AA-';

--US\$8,000,000 class A-2b senior secured fixed-rate **notes**  
'AA-';

--US\$42,000,000 class B-1 senior secured **floating-rate**  
**notes** 'A-';

--US\$30,000,000 class B-2 senior secured fixed-**rate**  
**notes** 'A-'.

The ratings of the class A-1, A-2a and A-2b **notes** address the likelihood that investors will receive full and timely payments of interest on scheduled interest payment dates, as well as the stated balance of original principal on the final payment date. The ratings of the class B-1 and B-2 notes address the likelihood that investors will receive ultimate and compensating interest payments, as well as the stated balance of the original principal on the final payment date.

The ratings are based upon the credit quality of the underlying assets, the credit enhancement provided to the capital structure through subordination and excess spread, and the strength of ZAIS Group, LLC as the investment manager.

The proceeds from the notes will be used to purchase a portfolio of

predominantly all collateralized **debt obligation** securities (CDOs), as well as some ABS securities and CMBS securities. At closing, approximately 90% of the total portfolio had been **purchased**. The ratings of the underlying **assets** were used to help assess the credit quality of the collateral. Per transaction guidelines, the portfolio must maintain a weighted average rating factor of 17 or between a 'BBB' or 'BBB-' rating. At closing, the portfolio had a weighted average rating factor well within its limit of 17. Fitch's evaluation of the transaction focuses on a thorough evaluation of the investment manager, the quality of the underlying assets, certain structural provisions and maintenance tests established by the governing documents, and modeling exercises that stress the portfolio with a variety of **default** and **interest** rate scenarios designed to simulate varying economic conditions.

CONTACT: Fitch Ratings, New York  
Elizabeth Russotto, 212/908-0585  
Media Relations: Matt Burkhard, 212/908-0540

URL: <http://www.businesswire.com>

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**Company Names: MEDIA RELATIONS GROUP; MEDIA RELATIONS INC; MEDIA RELATIONS LTD**

**Product Names: FINANCIAL SERVICES; INVESTMENT**

**Event Names: CORPORATE FINANCIAL DATA; INVESTMENT; STOCKS AND SHARES**

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**106/9/16 (Item 16 from file: 15)**

**02863313 797692171**

**CDO Transactions Structural Basics**

**Khakee, Nik; Wong, Elwyn**

**Securitization Conduit v5n1-4 pp: 18-37**

**2002**

**ISSN: 1098-2957 Journal Code: SECO**

**Document Type: Periodical; Feature Language: English Record Type: Fulltext Length: 20 Pages**

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**Abstract:**

Collateralized **debt obligation** (CDO) technology allows for the accumulation of collateral across a wide range of assets. For example, the portfolio might include bonds, loans or synthetic securities, corporate securities, structured finance securities, assets denominated in U.S. dollar or other currencies, and investment-grade or noninvestment-grade securities. Since synthetic CDOs take on credit risk through the derivatives market, the same issues that prevail in cash CDOs are applicable, but must be viewed slightly differently. The period during

which the portfolio **assets** are **purchased** in the market or are originated is called the "ramp-up" period. The ramp-up period gives the manager more flexibility to identify assets that will add diversity and solid credit standing to the portfolio. At the end of the ramp-up period most transactions have an effective date. CDOs are increasingly tapping into revolving credit facility assets and offering to investors revolving liabilities. In addition to coverage tests, collateral quality tests serve as a "blueprint" for eligible collateral and for portfolio parameters during the revolving period.

## Text:

CDO structures contain various covenants and mechanisms that dictate the composition of the collateral portfolio, define the trading activities permitted, allocate cash proceeds to the rated notes and equity, and aim to protect noteholders by paying down debt if certain triggers are tripped. This section will focus on the features common to most CDOs, outline considerations and risks associated with each, and highlight Standard & Poor's criteria developed to address such concerns.

### I. CASH FLOW CDOS COLLATERAL DEBT SECURITIES/ELIGIBILITY CRITERIA

CDO technology allows for the accumulation of collateral across a wide range of assets. For example, the portfolio might include bonds, loans or synthetic securities, corporate securities, structured finance securities, assets denominated in U.S. dollar or other currencies, and investment-grade or noninvestment-grade securities. Absent constraints, investors and rating agencies would have great difficulty identifying the risks in the CDO as each type of assets introduces different cash flow characteristics and risk sensitivity factors.

The trading mechanism included in most transactions further complicates the issue as the risk profile of the portfolio may change during the reinvestment period. Constraints on the types of collateral and concentration limits are established through the definition of collateral debt securities and eligibility criteria to alleviate this concern. Such parameters define the types of **assets** the manager can **purchase** and place limits on the concentration of **assets** across characteristics such as type, issuer, credit rating, and industry to create diversity. These constraints might take the form of "buckets" that set maximum limits, outright exclusion on the **purchase** of certain **assets**, or a maximum/minimum range for **assets**.

The collateral eligibility constraints typically cover the following:

- \* Types of assets eligible for inclusion in the transaction (e.g. corporate, ABS, synthetics);
- \* Form of the assets (loans, bonds, derivatives, etc.)
- \* Payment terms (frequency, interest, currency);
- \* Credit quality (investment-grade, high-yield, rating concentrations); and
- \* Aggregate pool characteristics (minimum coupon, recovery rates, concentrations).

For example, typical constraints found in corporate cash flow CDOs include:

- \* List of permitted asset types;

- \* List of permitted or excluded corporate industries;
- \* Range of bonds and loans as a percentage of total par;
- \* Range of fixed interest rate and floating interest rate assets as a percentage of total par;
- \* Buckets for assets such as structured finance securities, synthetic securities, and guaranteed securities;
- \* Buckets for assets that have unstable cash flows such as interest-only securities and assets that have the ability to defer or capitalize interest obligations;
- \* Limits on assets with bivariate or multivariate risk such as assets issued by foreign obligors, synthetic securities, and loan participations;
- \* Buckets to control concentration in single issuers or issuances;
- \* Limits on non-U.S. dollar-denominated **assets**;
- \* Prohibition by investors on **purchasing** credit-risk securities and defaulted securities; and
- \* Buckets for **assets** such as convertible bonds or bonds with attached warrants that introduce market value risk into the cash flow structure.

Typically such limitations and constraints are specified by the sponsor, banker, and collateral manager based on their perceptions of what the investor community wants and can be comfortable with. At certain times, investors also may request additional constraints to address specific concerns that they may have.

In its assessment of collateral debt security and eligibility criteria, Standard & Poor's takes into consideration items such as the experience of the collateral manager along asset types and across the credit spectrum, the feasibility of adequately modeling cash flows, and the introduction of atypical risks. When warranted, Standard & Poor's highlights collateral characteristics that increase risks. A general trend among transaction arrangers is to want to include buckets for all different types of collateral. The belief is that this will give the collateral manager greater flexibility to manage the transaction. While in general this is true, if the collateral manager has no experience with such collateral and does not intend to use it, this flexibility might actually cost the transaction. Why allow a 20% emerging markets bucket in a transaction when the collateral manager has no experience with managing such debt and does not intend to purchase such? Recoveries on emerging markets corporate debt are very low, and by having such a bucket, the weighted average recovery for the transaction will suffer, since Standard & Poor's will assume that the bucket will be used. Sponsors and transaction arrangers are encouraged to consider the consequences of including such buckets if the collateral manager will not use them.

Since, for most transactions credit support is sized through cash flows, the CDOs ability to adequately cover its principal and interest obligations under various stress scenarios is a key component of Standard & Poor's analysis. Assets that introduce variability in cash flows and cannot be effectively modeled therefore require added scrutiny. Payment-in-kind (PIK) assets, which have the ability to defer or capitalize interest as shortfalls arise, are one such example. Modeling the behavior of these assets proves difficult due to the scarcity of empirical data on the likelihood and timing of payment shortfalls. This concern is typically



addressed by limits to the inclusion of PIK securities and/or through the use of a liquidity facility to cover shortfalls in the payment of interest on the senior class of liabilities resulting from deferred interest on the PIK assets.

Convertible bonds, exchangeable bonds, and bonds with warrants attached introduce other risks. These instruments are convertible, and are allowed in transactions only if such convertibility is not mandated by the issuer of such debt but rather only by the holder of the debt. Prior to conversion or exchange, convertible and exchangeable bonds that meet collateral eligibility guidelines will be permitted in collateral valuation and coverage tests. After conversion, if the securities are not eligible as transaction assets, these securities are no longer considered eligible collateral debt securities, and should not be included in the coverage tests. Furthermore, the collateral manager must consider the effect that such conversion has on the transaction prior to exercising the conversion option.

For example, since equity is not given credit (either as principal or interest) in these types of transactions, converting eligible debt to equity weakens the transaction. The collateral managers should only exercise this option if they are certain that they can sell the equity and reinvest to maintain or improve the transaction tests. Equity warrants can remain attached to bonds in the collateral pool, but should not themselves be assigned any value in the collateral tests. As a result, bonds with equity warrants are generally constrained. Furthermore, certain debt having equity convertibility features might be considered margin stock, as in the United States, and subject the transaction to specific regulations should certain concentrations of this debt be held by the transaction. Transaction sponsors and organizers are strongly urged to consider all such implications before proposing inclusion of convertible instruments.

Interest-only securities are another example of assets with relatively volatile cash flow streams. These assets may be first loss pieces covered by excess spread from several structured finance products such as CMRS and RMBS. As first loss pieces, their ability to provide cash flow is highly susceptible to voluntary and involuntary prepayments of the underlying collateral. These securities are typically limited to 5% of the collateral pool in conventional corporate CDO transactions, and a "haircut" is applied in the modeling of cash flow.

A growing number of CDO structures are including "baskets" for assets with bivariate credit risk. These baskets can enhance yield, or expand the eligible collateral universe, especially later in the reinvestment period when a collateral manager's asset maturity profile contracts. Bivariate risk arises when the probability of default on an asset is the combination of the probabilities of default of two obligors or counterparties. These "bivariate risk assets" include loan participations, credit-linked notes (CLNs) or credit derivatives, securities loans, and corporate debt from obligors domiciled in countries rated lower than 'AA'. Standard & Poor's does not limit bivariate exposure in transactions because it has the analytical tools to size such risks, typically resulting in a higher level of required credit support. The "basket" limitations are driven by the investors and bankers that want to constrain certain risks.

A payment default may occur on a participation if either the borrower, the lending bank selling the participation, or both default. A credit derivative, such as a CLN, in which a counterparty promises payment based on performance of an underlying reference obligor or security, can default if either or both parties default. Similarly, securities can default if the counterparty (cash borrower and collateral pledgor), the obligor on the underlying collateral securities held by the lender, or both default.

Finally, emerging market debt denominated in a foreign currency (for example, U.S. dollar-denominated assets from corporate obligors domiciled outside the U.S.) may default if the corporate obligor defaults, if the sovereign government actions adversely affect the ability of the obligor to make timely payment on its obligations, or both the sovereign and the obligor default.

Not only is the risk of default higher on such assets, but it is also more difficult to assess. In addition, transparent, consistent pricing of such assets and secondary market liquidity are often not available for these assets. As a result, default recovery, and therefore loss levels are more difficult to estimate.

In order to help protect CDO noteholders from this incremental risk, bivariate default risk exposure is either generally limited or sized into the credit support. If total bivariate risk exposure is substantial, then the portfolio will be analyzed using Standard & Poor's multi-jurisdictional default model, which assesses the incremental default risk these assets introduce. This typically results in higher default estimates and credit enhancement levels. (See "Emerging Market CDO Criteria" in the "Special Topics" section for a more detailed explanation of bivariate risk.)

Corporate debt from countries rated as high as the most senior rating in the transaction at closing, or above 'AA', would not be analyzed as bivariate risk (for example, countries with foreign currency ratings of 'BBB' in a 'BBB' rated CDO). However, there should always be disclosure to investors of the presence of multiple jurisdictions and the potential impact of subsequent downgrade of a country.

CDOs continue to expand the collateral universe that is eligible for inclusion in CDO transactions, such as other CDOs or more traditional asset-backed securities (ABS). In traditional corporate CDOs, limited provisions have been permitted for including ABS and other rated CDO tranches. CDOs are increasingly investing in generally the rated tranches of other CDOs and even considering market value CDO debt tranches, as well as equity tranches of other CDOs. Managers have an appetite not only for senior tranches, but also for mezzanine pieces in senior-subordinated transactions, typically rated in the range of 'BBB' to 'BB'. Although these investments give the seller an additional distribution channel, and a liquidity or funding source for its CDO, the CDO transaction investing in other CDOs may face certain additional risks such as industry over concentrations that need to be addressed. Because of this, CDOs that repackage other CDOs or ABS are analyzed differently, from an asset default correlation standpoint, than are CDOs collateralized with corporate credits.

As structured, the credit quality of ABS, in CDO transactions, is generally strong, with a large portion carrying investment-grade ratings. Often, ABS comprises the highest-rated collateral in a portfolio, especially for arbitrage transactions. However, there are other considerations in looking at ABS transactions as assets in CDO transactions. Although highly rated secured financings, the secondary ABS market is not as mature or deep as the unsecured corporate debt market. Default and recovery history is limited for ABS, and investors that invest in traditional corporate CDOs may not be comfortable with investing in CDOs of ABS. As such, basket provisions are appropriate in corporate CDOs. Generally, **asset** managers should not "cross-invest" in their transactions by **purchasing** their own CDO tranches in other CDOs under their management. Investors in such CDO-backed CDOs may face the risk of highly correlated defaults if managers encounter problems.

## II. SYNTHETIC CDOs' COLLATERAL DEBT SECURITIES/ELIGIBILITY CRITERIA

Since synthetic CDOs take on credit risk through the derivatives market, the same issues that prevail in cash CDOs are applicable, but must be viewed slightly differently. A synthetic CDO is in a sense a CDO with a 100% synthetic bucket. As such, counterparty risk, which has traditionally been referred to as bivariate risk, is a primary focus of concern. Currently, this risk is addressed structurally rather than being explicitly modeled into the synthetic CDO.

A synthetic CDO transaction takes on credit risk by entering into one or more credit derivative contracts with one or more counterparties, as opposed to acquiring the physical assets. The credit derivative swap contract will list the reference **asset**. Typically however, as opposed to a cash CDO where a portfolio manager will **purchase** a specific bond, the credit derivative simply lists the name of the company as the reference entity. Typically, the obligation category selected in such transactions is "borrowed money". Thus, default of any bond, loan, deposit obligation or reimbursement obligation by the reference entity constitutes grounds for exercising what amounts to a default option the CDO manager has sold to the counterparty on the reference entity. When the physical settlement option is selected, upon default the synthetic CDO replicates the cash CDO most closely, but not exactly. As noted above, the cash CDOs have extensive thought given to the nature of the collateral debt securities and the characteristics of the pool. In the synthetic CDO, the sources of credit risk are explicitly not acquired assets but rather sourced as a derivative. Thus, as is commonplace in the credit derivatives market, only the name of the company is of concern, and the eligibility issues in regard to the cash flow characteristics of the assets are not an issue.

The cash flow the synthetic CDO receives is the spread associated with the credit risk of that particular obligor. It is at the time of contract not a specific security that would require eligibility scrutiny. This cash flow, or spread income, if unstructured is subject to two risks, default of the reference entity or default of the counterparty that has entered into the credit derivative contract with the CDO.

### A. Counterparty Risks

Standard & Poor's has required that mitigation of the counterparty risk be addressed by eligible counterparty ratings. Thus a highly rated 'A-1+' counterparty is deemed to be of sufficient credit quality to warrant no further adjustment. A counterparty rated 'A-1' may be required to post some amount of the cash flow (the swap premium referred to in the credit derivatives definitions as the fixed-rate payment) in advance. Typically, this is simply one periodic payment that must be made in advance, and thus the net effect is to have the premium payment made at the beginning of the period as opposed to the conventional end-of-period payment. Counterparties rated 'A-2' are deemed insufficient to contract in a 'AAA' rated synthetic CDO transaction without posting the present value of all future periodic payments up-front. This posting requirement mitigates the risk that cash flows, that have been modeled and relied upon as credit support in the transaction are terminated for reasons other than default of the underlying reference entity.

The other risk that the counterparty presents in synthetic CDOs is termination risk. As opposed to a cash CDO, the synthetic CDO faces not only the risk of default of the underlying bond-the reference entity-but also the possibility that a counterparty will cause termination of the credit derivative contract. This opens up the unsized and unanticipated risk of not only loss of the premium, or cash flow, which was previously

addressed, but also the reality that swap mechanics demand a mark-to-market (MTM) on the swap contract at the time of termination.

In a scenario where the associated credit spread with the reference entity or entities in the credit derivative have widened in the traded market relative to when the contract was initiated, it is quite likely that the credit derivative protection the CDO sold to the counterparty could be repriced at an MTM that is "out of the money" from the CDO. In other words, the CDO has an unanticipated cash payment due through no fault of its own and only because the counterparty defaulted. This payment could cause default of the CDO on its rated obligations to investors and to other counterparties. Typically, solutions include subordinating the termination in the waterfall to the rated noteholders, or eliminating the responsibility to make such a payment by rendering Section 6(e) of the swap master agreement "Not Applicable" at the outset of the transaction.

Having addressed the counterparty risk and the nature of how the synthetic CDO takes on credit risk, it becomes clear that in typical synthetic CDOs, as in cash flow CDOs, the primary focus is the credit risk of the reference entity and the premium spreads (cash) being paid to the CDO. The collateral debt security is actually defined by its characteristics in the credit derivative contract. These characteristics help relate the credit derivative contract to the actual collateral debt securities that would be purchased by a typical cash flow CDO. The following are some of the typical characteristics of the International Swap Dealers Association Inc.'s (ISDA) credit derivative contract that Standard & Poor's requires in order to establish the nature of the credit risk.

#### B. Reference Price

A reference price of 100% of par is selected in the vast majority of transactions. If a reference price lower than 100% is selected, the discount, represented by a cash payment to the CDO, must be retained in the structure. It is common to limit the discount to no more than 2% of the market "price" as represented in the spread.

#### C. Obligation Category

The broad concept of "borrowed money" is acceptable, but typically the general concept of bonds or loans is referenced. Loan is typically elected in synthetic balance sheet transactions. This election is possible because the bank seeking regulatory relief has a specific loan already on the books and is seeking regulatory capital relief on that specific loan. This is advantageous because, if a workout consistent with Standard & Poor's assumptions is allowed, recovery assumptions may be higher for these "loan"-only reference pools (see Synthetic Recoveries).

#### D. Obligation Characteristics

For this, "None Specified" is acceptable. "None Specified" means that the standard characteristics found in the ISDA 1999 document are applicable.

#### E. Settlement Terms

Either cash or physical settlement is acceptable. As noted earlier, recovery assumptions will be lower for cash settlement relative to physical settlement. Similarly, recovery assumptions may be lower for physical settlement than for a traditional cash CDO. This focuses on the relevant eligibility criteria under the settlement terms present in the synthetic. Most often, transactors do not want to pre-define what the settlement obligation will be but rather give a wide range of obligations that are *pari passu*. This is quite different from a cash flow CDO that has

eligibility criteria because of cash flow concerns.

Thus the credit derivative is really a credit default put option that is sold by the investor to a transaction's counterparty to be exercised upon a credit event of the referenced entity. The investors are thus considered sellers of credit protection and the counterparty the buyer. The counterparty has, for a premium, gained the ability, in theory, to deliver an eligible instrument to the CDO upon default of the underlying reference entity. What security will be delivered is generally not known prior to default. A cash CDO knows exactly what security it owns since it has purchased it already. In the synthetic CDO, typically this security is not pre-specified and thus the manager does not know what security will either be delivered or priced depending upon whether physical or cash settlement is elected.

This put option on the asset held by the counterparty is recognized as inferior to the manager's ability to have sourced a specific obligation and manage it through the default process. But such difference can be minimized or mitigated as follows:

- \* Defining the deliverable obligation or settlement asset by utilizing the eligibility criteria typically found in a cash flow CDO. This makes the credit derivative slightly less desirable to the counterparty since the flexibility to deliver the cheapest possible asset may be compromised. However, it makes the credit derivative more consistent with what cash flow CDOs would have acquired to begin with.

- \* Eliminating contingent obligations and limiting the newly defined "Not Contingent" deliverable obligations. The "Not Contingent" definition now includes zero-coupon, convertible, and exchangeable bonds. These exposures would typically be limited in cash flow CDO portfolio eligibility criteria, and lower recoveries are currently assumed by Standard & Poor's for these assets with either out-of-the-money options or options that have questionable value at the point of default of the reference entity.

- \* In all cases, the option must be held by the holder and not the issuer of the security, and this is standard in the new ISDA 99 definitions.

- \* Limiting the maximum maturity of the deliverable or settlement obligation to that consistent with maturity of collateral debt securities criteria applicable to a cash flow CDO. This limitation is less relevant given the maturity restriction limitation in the new ISDA 99 definitions.

If the characteristics of the physically delivered settlement obligations are likened to those which a CDO manager would have purchased under typical eligibility criteria described previously, then the recoveries identical to those the managers would qualify for in cash CDO are applicable. In all other cases, lower recoveries will be assumed. The deliverable characteristics and recovery mechanism in the synthetic CDO affect recovery values similar to how these parameters affect recovery values in cash flow CDOs.

In synthetic CDOs that repack ARS or other CDOs, specific reference obligations are mandatory, as there is no applicable concept of default of a reference entity for structured financings that could be equated to a corporate entity. For example, if a subordinate bond of a corporate issuer defaults, it is generally assumed that the modern bond, loan, and reimbursement documentation contains cross-default language such that the entire capital structure will have the ability to declare a default event. Capital structure for the corporate entity is considered to be most important to the recovery assumptions, but not probability of default. This is completely inconsistent with structured finance obligations where the

probability of default is totally tied to the place in the capital structure. Thus, specific reference obligations must be referenced in a synthetic CDO that repackages ABS or CDOs. For inclusion in synthetic CDOs, reference entities are rendered eligible if they have a public, private, or implied issuer credit rating (ICR) by Standard & Poor's. Notional amounts and tenor are characteristics in regards to the specific credit, but are not typically covered eligibility criteria for the transaction, other than to limit obligor and industry concentrations.

Upon an event of default in a synthetic CDO, the settlement obligation characteristics typically have:

- \* Precluded indirect and direct loan participations,
- \* Accepted the assignable loan or consent required loan characteristic, typically with language that the ability to assign or transfer the loan has been secured, and
- \* Specified a currency that is usually the currency of the synthetic CDO issuer.

However, it is possible to not require the specified currency of the CDO issuer, given one of two solutions to the currency risk:

- \* The cash settlement price is calculated on a percentage basis and then translated into the issuer's currency, thus eliminating additional loss to the investor that could have been reflected in the currency loss; and
- \* The physical settlement recovery assumption is haircut to reflect the additional loss possible due to currency conversion-rate loss. These currency stress haircut assumptions are derived from Standard & Poor's Foreign Exchange Extreme Value tables.

The contingent ability of a manager to enter into a currency hedge upon physical deliver)' of a defaulted asset is not generally accepted, as it is hard to determine the cost in advance to reserve in the capital structure to address such cost and at the time of default it is hard to determine precisely what the recovery will be. Thus the CDO will be under- or over-hedged, which introduces new risk to the synthetic CDO investor.

Traditionally, the portfolios of a synthetic CDO has been investment-grade corporate names due to the fact that those are the names that are relatively liquid in the credit derivatives market. The derivative market for high-yield companies and instruments is currently still in the nascent stage, and while such instruments and companies are eligible for inclusions in synthetic CDOs, some further refinements and haircuts in recovery values for cash settlement options are appropriate, given the liquidity of the market.

Standard & Poor's takes into consideration items such as the experience of the collateral manager, financial institution, or calculation agent, along with the asset types and the credit spectrum, when considering recovery assumptions in synthetic CDOs.

### III. RAMP-UP PERIOD

A CDO transaction may involve an initial period of time post transaction closing during which the manager acquires the underlying collateral from the proceeds of the rated securities. This is most prevalent in cash flow transactions, since in synthetic CDOs the portfolio is typically fully identified. The period during which the portfolio **assets** are

**purchased** in the market or are originated is called the "ramp-up" period. Typically, in cash flow arbitrage transactions, 50% to 70% of the assets are accumulated by the closing date, with the balance acquired during the ramp-up period which generally ranges from three to six months.

The ramp-up period gives the manager more flexibility to identify assets that will add diversity and solid credit standing to the portfolio. The manager is able to choose from a larger universe of assets as new issuances are brought to market. This is particularly important during times of market upheaval such as those experienced during the Asian financial crisis and Russia's default in the late 1990s. Absent the ramp-up period, a CDO closing at a time of constricted debt issuance or in a stressed interest rate environment would experience difficulty sourcing acceptable collateral and might be forced into **purchasing assets** with less desirable credit or payment characteristics.

There are, however, several risks associated with long ramp-up periods. The most prevalent risks during ramp-up, when bulk purchases of collateral are made over uncertain market conditions and time horizons, include the following:

- \* Negative carry between short-term earnings on undeployed cash proceeds and the already issued note liabilities;
- \* Liquidity risks due to accrued interest flows and payment date differences;
- \* "Origination risk" due to unavailability of the bonds and loans the manager intended to buy; adverse credit spread or price movements, which increase the cost of **purchased assets**;
- \* Interest rate movements or "spikes," which increase the interest cost on any floating-rate liabilities; and
- \* Concentration risk in the portfolio prior to full ramp-up. Concentration risk can arise despite portfolio diversification guidelines because the investment may initially be concentrated in a small number of obligors, few industries, or relatively weaker credits compared with the portfolio's intended composition at the end of the ramp-up period. Though the transaction is under-leveraged during ramp-up based on the "injection" of equity and mezzanine debt proceeds at closing, these risks are present, especially when interest rates, or credit spreads for corporate debt over applicable risk-free rates, become volatile or when corporate debt market liquidity diminishes.

Arbitrage CDOs have designed numerous solutions to mitigate these risks. Many structures have incorporated a "phased" ramp-up, for example, a nine-month ramp-up period divided into three three-month periods, during which **notes** are redeemed if collateral purchase targets have not been met at the end of each of the three-month periods. Another protective feature is to fix the interest **rate** on **floating-rate note** liabilities during the ramp-up period, which usually differs in length from a regular interest accrual period. Standard & Poor's **rates** the transactions based on the anticipated effective date portfolio, and expects to affirm its rating on the fully ramped-up portfolio on the designated effective date or on the date that marks the end of the ramp-up period.

While the ramp-up risks in the transaction are real, the vast majority of CDOs closed to date have not had a problem with ramp-up. The primary and secondary debt markets have been fairly liquid, and collateral managers

have been able to **purchase assets** that met the overall transaction requirements. In certain cases, collateral managers have turned to synthetic securities to craft certain asset characteristics that were needed for the CDO, but perhaps were not available in the market. Such strategies do work to a certain extent; however, most cash flow CDOs have limitations on how much synthetic collateral may be contained in the asset pool, and such synthetic collateral is typically less liquid.

#### IV. EFFECTIVE DATE

At the end of the ramp-up period most transactions have an effective date. This date occurs after the last day of the ramp-up period, or earlier if the required amount of collateral has been purchased. Typically, for the transaction to become effective the ratings of the transaction must be affirmed. For this to occur, Standard & Poor's requires the manager to provide information on the composition of the portfolio and to verify that the portfolio default rate is lower than the break-even default rate shown by the cash flow analyses prior to closing. In addition, the portfolio collateral eligibility and coverage test should be met.

If the transaction does not meet all of its tests, Standard & Poor's will generally rerun the cash flow analyses and assess if the ratings can be maintained. In rerunning the cash flows, Standard & Poor's may modify some of the original assumptions used prior to closing to better reflect the actual composition of the collateral. For example, even if the default rate of the ramp-up portfolio is greater than the break-even default rate, the actual collateral pool may have a weighted average coupon or spread significantly above the minimum at which the transaction was initially modeled. Thus the transaction can still perform at the respective rating level.

If the ratings of the transaction are not affirmed, most transactions require a paydown of the rated notes to bring themselves back in compliance.

#### V. PORTFOLIO COMPOSITION AND ASSET ADDITIONS

The sponsor or collateral manager may choose to use the CDO Monitor, also known as the Trading Model (see the "CDO Evaluator & Portfolio Benchmarks" section for a complete description), as a surveillance tool in managing the portfolio during the revolving period. (Note: Any reference in this section to the CDO Monitor can apply to the single-jurisdictional or multi-jurisdictional version.) Alternatively, the sponsor or manager may choose not to use the model, but to manage the portfolio within "stressed" eligibility criteria. Each of these management choices has important ramifications for the relationship between the portfolio assumptions used in sizing credit enhancement and the actual portfolio composition as it changes over the life of the transaction.

Credit enhancement may be analyzed based on a closing portfolio if regular ongoing tests are performed, including running the CDO Monitor upon substitution and reinvestment. Notification to Standard & Poor's should occur when limits are reached, or when the potential default rate exceeds the threshold established at closing. In this application, reliance on the manager may increase, particularly if the manager changes strategy or is replaced. The portfolio may evolve differently from the assumptions in the original rating, and the transaction may be subject to a rating change. Sponsors and investors alike should be aware of the trade-offs between the level of credit support and potential rating volatility of the transaction, and carefully consider them in structuring a transaction and setting up management guidelines.



Credit enhancement also may be analyzed based on a "stressed" eligible portfolio. Based on transaction investment parameters, the assumed portfolio will be constructed by filling the rating, concentration, and maturity buckets with the riskiest assets. In this application, the manager does not regularly run the CDO Monitor during the reinvestment period.

For example, consider portfolio eligibility guidelines that permit up to 10% 'CCC' rated assets, 50% 'B', and 40% 'BB'; 100 obligors with a 1% obligor limit; and a maturity distribution of 20% in 10-year, 20% in seven-year, and 60% in five-year assets. Given these transaction parameters, Standard & Poor's analysts would expect an assumed stressed eligible portfolio, and fill the buckets as follows: The 20% maximum 10-year maturity bucket would comprise the lowest rated 'CCC' assets totaling 10%, with the remaining 10% comprising the next lowest rated 'B' assets. The next longest seven-year maturity bucket would comprise another 20% of 'B' assets. The remaining 20% of 'B' assets would be placed in the five-year maturity bucket, along with the remaining 40% of 'BB' assets. No more than 100 obligors and assets would be assumed, as this would fill the 1% obligor limit.

The highest-risk, lowest-rated assets are distributed in the buckets to maximize credit exposure assuming the manager exercises his full flexibility to the limits of the eligibility criteria. As a result, the credit enhancement level will be higher to cover this "stressed case." Under these assumptions, the manager does not use the CDO Monitor, and can trade to eligibility criteria. The benefit is the simplicity in managing to eligibility guidelines for which initial credit enhancement has been sized. All else equal, a change in manager or strategy may not adversely affect the CDO rating, as long as the manager does not breach eligibility criteria.

While the "stress case" gives the manager more flexibility per se, since he/she can manage to only the eligibility requirements without running the model, in most cases the default numbers are more onerous than when the transaction is structured using a representative portfolio and the CDO Monitor. As such, the arrangers structure most transactions with the CDO Monitor. Most collateral managers also like the concept that they are not tied to hard bucket limitations or weighted-average rating concepts.

In synthetic CDOs, as with cash flow CDOs, the sponsor or collateral manager may choose to use the CDO Monitor as described above. The synthetic CDO considerations revolve around the structure. In a synthetic CDO with no trading gains or loss but with substitution, the CDO Monitor will simply reflect the changed credit quality of the portfolio based upon the deletion of one reference entity and the associated Standard & Poor's rating compared with the new credit risk associated with the new reference entity's rating. In a synthetic CDO with trading gains and losses, the identical procedure as described in the cash CDO Monitor section is applicable.

## VI. REVOLVING CREDIT FACILITY RISKS

CDOs are increasingly tapping into revolving credit facility assets and offering to investors revolving liabilities. Revolvers introduce payment, liquidity, and portfolio concentration risks in exchange for the flexibility they provide. Revolving credit facilities are more prevalent in bank balance sheet CDOs than in arbitrage CDOs (for a fuller discussion, see the section on "Master Trust CDO Structures"). In arbitrage transactions, revolvers generally comprise a small portion of the portfolio, and their purchase and funding is often done through the SPE. Below is a general discussion of revolving credit facility risks, and key analytical issues, including those germane to funding via the SPE.

The main financial risks that must be covered are:

- \* The ability of the CDO sponsor SPE as lender to make unfunded commitments, in full and on time, to its borrowers on the asset side of the CDO;
- \* The ability of the CDO sponsor or SPE as borrower to make payments on its funded commitments, in full and on time, to its lenders on the liability side of the CDO; and
- \* The sufficiency of credit enhancement to withstand **default** and **interest** rate stresses in cash flow tests under various revolver origination and funding scenarios.

On the asset side, revolvers affect the portfolio and the transaction cash flows because they affect the relative balance of the pool. For example, if 50% of revolver assets with higher-rated obligors are not fully funded, the resulting portfolio may be smaller, lower in credit quality, and more highly concentrated per obligor. The weakness, however, is partially offset by the higher spread from the higher margins on the loans of weaker borrowers. In general, these risks should be covered by credit enhancement as demonstrated in the cash flow analysis, by reserves, or by liquidity or support agreements from providers rated as high as the senior tranche.

Revolving credit facilities on the asset side of a CDO transaction impact portfolio composition, based on varying drawn and undrawn amounts from different borrowers of different credit quality. In a difficult economic environment, it will be likely to see lower-credit quality borrowers making more use of the funding sources at their disposal, even with a weakened lending institution. In other situations or for higher credit quality borrowers, however, some assumption of portfolio payment or **purchase** rates may be warranted. In order to assess the many **asset** portfolios and cash flow risks that can arise, revolver stress scenarios are analyzed by generally varying the asset portfolio in terms of size, drawn versus undrawn percentages, credit quality, obligor/industry concentrations, and interest rate spread. CDO criteria focus on the impact of revolving credit facility assets and liabilities on the transaction's cash flows, liquidity, and portfolio composition, which are summarized below:

- \* Cash flow analysis. Changes in the amount outstanding under revolving facilities impact transaction liquidity and cash flow. Analysts will request that cash flows be stressed using a default frequency assumption at several drawdown levels on revolving assets and liabilities.
- \* Reserves. If the SPE is obligated to fund revolving assets, it may set up a cash reserve to fund its draws. Credit enhancement must be sufficient to cover the resulting negative carry between the earnings on reserve fund-eligible investments and the transaction's interest cost.
- \* Liquidity or support agreements. If the SPE is obligated to fund revolving **assets**, it may also fund draws by **purchasing** liquidity lines or standby commitments from providers rated as high as the senior-most tranche. Eligible providers should be rated as high as the senior-most tranche. Alternatively, an 'A-1+' rated entity may participate in an 'AAA' CDO with appropriate replacement provisions upon downgrade. To cover negative carry, the commitment fees earned on the unused revolving credit facility assets should be higher than the commitment fees charged on the unused revolving credit facility liability. These liquidity agreements can also be put in place to support revolving rated liabilities issued by the SPE.

Revolving loans also introduce additional legal risks to the transaction. These should be adequately addressed (see "Legal Considerations").

## VII. REINVESTMENT PERIOD

### A. Cash Flow Transaction

Although cash flow and synthetic CDOs do not rely on collateral market value to pay debt service, they can be impacted by changes in market value. The reason is that, although limited, some trading and secondary market sales are allowed. The period during which assets may be traded under specified conditions is called the "revolving" or "reinvestment" period. During this time in cash flow transactions, **asset** cash flows can be reinvested or used to **purchase** eligible **assets** as long as certain tests are met, mainly coverage, collateral quality and portfolio profile tests. After the revolving period, collateral principal proceeds are typically used to pay down senior notes until they are retired, even if the coverage tests are passed. In synthetic CDOs, the collateral manager may also have the option of selling securities and entering into new arrangements.

Issuers prefer the option of trading CDO portfolio assets throughout the term of the transaction. Credit enhancement in CDOs is sized to account for losses on defaulted assets, but not on performing assets. As a result, trading and portfolio turnover is limited, either by reinvestment criteria during the revolving period or by specific trading rules. Typically the revolving period ranges from two to six years. Reinvestment of collateral cash receipts during this time has several advantages. Reinvestment can be used to maintain collateral quality and portfolio diversification, as rating changes, or as maturities, amortization, prepayments, or defaults reconfigure the pool. In addition, if prepayments during the revolving period are reinvested in eligible collateral, they may preserve yield for investors and excess spread for the transaction. The revolving period also enables a transaction to profit purely from limited trading activities, that is, buying and selling of collateral.

Replacing collateral, however, instead of paying down notes, can add credit and market risk to any transaction. Failure of some or all of the coverage, collateral quality, or portfolio diversification tests may trigger delevering or paydown of the rated notes in order of seniority. These tests, and their remedies upon failure, are very important to the integrity of the structure. That is, maintaining a particular rating level depends directly on meeting, on an ongoing basis, the fundamental requirements of that rating.

The majority of rated CDO transactions provide that the collateral manager may trade assets during the reinvestment period via four collateral sales mechanisms:

- \* Credit-risk security sales,
- \* Credit-improved security sales,
- \* Defaulted asset sales, and
- \* Discretionary sales.

Assets judged to be credit-risk (or "credit-impaired") securities can be sold to avert default losses, while credit-improved (or "credit-appreciated") securities can be sold to improve collateral quality and boost returns to equity investors. The intention of such trading should be to protect against default by selling credit-risk assets with a deteriorating credit profile. The intention of such trading should not be

to exercise greater discretion and flexibility in asset management, particularly to proffer gains for the manager or other equity holders at the expense of rated noteholders.

There are two aspects of constraining the trading of these assets in order to protect the portfolio from high turnover and undue exposure to price erosion: designation, and application of proceeds. The designation or definition of credit-risk and credit-improved securities controls how often the sale occurs, and should be specific. The application of proceeds controls uses of the sales proceeds, reinvestment in new assets, and payment of all or part of the sales proceeds to investors according to the priority of payments, or "waterfall." These guidelines should protect senior noteholders from the release of cash should the transaction be underperforming.

There are many variations in terms of the definition of credit-risk and credit-improved securities. However, there are at least two elements important to carving out these assets. First, the concept of a significant change in credit standing should be clear. Second, the manager's responsibility to judge that an asset fits the applicable definition should be clear.

The manager should certify to the trustee in writing his opinion that the asset should be so designated and sold, and that any replacement asset meets applicable reinvestment criteria. Standard & Poor's believes that the manager's judgment and responsibility are paramount in making these decisions, and therefore does not impose price or other hurdles before the manager may consider something credit-improved or credit-impaired.

The application of sales proceeds is more complicated. General reinvestment criteria should apply, as well as additional guidelines as follows to fulfill the purpose of the trade:

**Credit-risk security**-If the manager deems a security to be a credit-risk security, the manager should be able to take appropriate action to avert a likely default in the future. The problem that arises is that, unless the manager is way ahead of the market sentiment, the sale price of such security is at a considerable discount to par. Requiring the manager to satisfy, or if not currently satisfying the coverage test or CDO Monitor test, to maintain or improve the test, would de facto force the manager to buy another deeply discounted security.

In Standard & Poor's opinion, this would not benefit the transaction. Standard & Poor's thus believes the manager should use all the sale proceeds to buy a new security without the requirement to maintain or improve the par coverage test and the Standard & Poor's CDO Monitor test. This gives the manager the flexibility to buy a good credit and not focus on replacing par with another "credit-risk" security; . The interest; coverage test and the other quality tests must still be maintained or improved. Also, the manager and the transaction might be better served if the proceeds from the sale of a credit risk security were used to pay-down the notes. Many indentures allow this if the collateral manager cannot find a suitable reinvestment option or deems that pay down is the best course of action.

**Credit-improved security**-If the credit view on the security has improved, it is likely that the market value of the security has improved relative to where it was purchased. After selling a credit-improved security, Standard & Poor's requires that the manager replace the par of the credit-improved security with an asset the par value of which is equal to or greater than the credit-improved security sold. The manager must also satisfy the collateral quality tests and the Standard & Poor's CDO

Monitor tests, or if they were not satisfied prior to the sale of the credit-improved security, to maintain or improve the results of the test with the purchase. If the tests are not satisfied prior to the sale of the credit-improved security, Standard & Poor's prefers that capital gains be used to purchase new par value securities and such gains not paid out as interest to junior noteholders or equity holders.

Some transactions track par loss and require all gains to be reinvested until the par loss is made up. A structure that continues to reinvest premiums and capital gains in a par replacement of collateral during the revolving period is stronger from an overcollateralization perspective. For example, if a collateral debt security (CDS) with a par amount of \$100 was originally purchased for \$80, but sold for \$90 (for example, as a credit-improved security), a \$10 capital gain is realized upon sale. If the collateral manager reinvests the entire \$90 sale proceeds to replace the \$100 par amount sold, the new \$100 CDS will maintain the overcollateralization test and remain in the transaction for the benefit of the rated noteholders.

However, if the collateral manager "bifurcated" the \$90 sales proceeds by releasing the \$10 capital gain as excess interest through the interest waterfall, he would be left with \$80 to reinvest as principal. Even if the structure had a par replacement provision, the manager is at a disadvantage, having a more limited investment universe since he could not buy anything costing more than \$80. To maintain credit quality, it is more likely that the replacement collateral would have a par amount significantly lower than \$100. From the point of view of the rated noteholders, the first structure, which reinvests the capital gain, is stronger from an overcollateralization perspective than the second structure, which "flows out" the capital gain to enhance the return of equity holders.

Defaulted security-Defaulted securities may be sold at any time or worked out to recovery. In general, most transactions use such recoveries to pay down the rated notes should the overcollateralization (O/C) or interest coverage (I/C) tests be breached. If the coverage tests are not satisfied, the sale proceeds or "recoveries" from the defaulted security must be held in the collection account and used to pay down the liabilities on the next payment date. Some transactions allow reinvestment of these sales, as long as the coverage tests are maintained or improved. For these transactions, Standard & Poor's models the cash flows assuming that recoveries on defaults are never used to pay down the notes during the reinvestment period, regardless of whether the coverage tests are met or not.

The risk of price depreciation and liquidity diminution in the secondary market, particularly in defaulted asset sales for recovery, is important in cash flow transactions. The loss of expected interest proceeds from defaulted assets stresses the interest coverage ratio and the transaction's ability to make timely payments on its interest obligations. Defaulted assets are also treated at recovery assumptions that reflect substantial price depreciation in the par coverage ratio. Through sales of defaulted securities, the manager frees up cash to reinvest in performing assets or pay down the senior-most notes. However, there is a trade-off between current market value and ultimate recovery. In a majority of cases defaulted securities trade at much lower prices than the ultimate recovery that they would achieve. Part of this is due to the carrying cost over the recovery period, and part is associated to the uncertainty as to what the ultimate recovery will be. The collateral manager must evaluate this in conjunction with the current status of the transaction and make a decision if it is better to hold or sell such defaulted securities. Defaulted securities can be sold both during and after the reinvestment period.

Discretionary trading-In addition to credit-risk, credit-improved and defaulted asset trades, CDOs often allow discretionary trades during the revolving period, subject to coverage tests and reinvestment criteria. In general, these trades are limited to a small basket (typically 10% to 20%) which caps the principal amount purchased in a calendar year or one-year period to a percent of the pool principal balance. The concerns cited above regarding release of premiums and capital gains to equity holders prior to the repayment of rated notes also apply to discretionary trades. Recent deals seek to alleviate such concerns with the inclusion of provisions that shut off the manager's access to discretionary trading should the transaction have migrated significantly from its coverage or/and collateral quality tests. Standard & Poor's requires that the manager replace the par of the discretionary security traded with an asset whose par value is equal to or greater than the discretionary security sold. The manager must also satisfy the collateral quality tests and the Standard & Poor's CDO Monitor tests, or if they were not satisfied prior to the sale of the discretionary security, to maintain or improve the results of the test with the purchase.

Equity Securities-Equity securities get no benefit in any test in the indenture. Such equity is either acquired through a debt conversion or as recoveries on defaulted obligations. In general cash flow and synthetic CDOs are not allowed to purchase equities. Equity securities may be sold at any time. If the equities are acquired through a debt conversion, the collateral manager is typically required to maintain or improve all coverage tests after the conversion. If the equity is acquired as recoveries, then any sale proceeds from such equities must also be deemed recoveries and must be applied similar to any other recovery. The collateral manager may also hold onto equity securities obtained as recoveries if he/she believes that such securities will improve in price over time.

To monitor the quality of the portfolio during the reinvestment period for Standard & Poor's, the majority of transactions are structured with the use of Standard & Poor's CDO Monitor (see "CDO Monitor" in the "Sizing Defaults" section for a complete explanation). The Monitor looks at the total dollar amount of losses that the transaction can sustain as established by the initial cash flows for each rating, and compares that with the default potential of the current portfolio plus par losses to date. For other than credit risk sales, the collateral manager runs the Monitor before and after the proposed reinvestment and sees if the results are maintained or improved. Most managers view this as a useful tool in maintaining portfolio quality and stipulate in the transaction documents that they will only reinvest if they can maintain or improve the results. If the transaction fails the Monitor test, the collateral manager must notify Standard & Poor's of such failure in order to reevaluate the transaction

A certain number of CDOs aim to combine the benefits of arbitrage with those of off-balance sheet treatment. Under FASB 125 in the U.S., the collateral manager must relinquish control over his ability to trade the transferred assets, and trade only credit-risk securities, which are denominated based on "objective" criteria. The investor should note that some interpretations of FASB 125 can translate into automatic sale of broadly defined credit-risk securities. For example, such transactions can have provisions that if the rating of the asset migrates to below 'B' then such asset must be sold out of the collateral pool. In these situations, there could be higher asset turnover because not only defaulted assets would impact the transaction, but also assets with negative credit migration. In such cases Standard & Poor's has to size how many assets would transition from B directly to default and how many would be downgraded to below B and sold. This analysis is more complex but feasible. In addition assets that must be sold increase exposure to market value risk, thereby

warranting a more price-based analysis of credit enhancement.

Overall, the trading flexibility discussed above represents an additional level of risk to the investor, who is exposed to the collateral manager's decisions. As a result, there is a greater risk in CDOs (versus more traditional asset-backed paper in which assets tend to be homogeneous) that the rating on a prospective CDO can change over time as the composition of the asset pool deteriorates. These changes can be a result of long revolving periods, credit upgrades or downgrades in the underlying assets, and active management. Transactions permitting portfolio turnover, whether through discretionary trading, or the trading of credit-risk or credit-improved assets, should adequately disclose that the ultimate rating of the respective transaction may be affected by the changing composition of the asset pool and the manager's skill in trading such assets.

#### B. Synthetic Transactions

In a synthetic CDO, the typical transaction has been a five-year bullet with the potential for up to one year of extension risk to give time for recoveries to be established on defaults that occur in the fifth year. These transactions typically have reinvestment periods that can extend all the way to days prior to the swap contract maturity date. More recently, the investment bankers who are more familiar with cash CDOs have structured synthetic CDOs with five-year reinvestment periods and 12-year legal final maturities. As the credit derivative contract is totally flexible, it renders irrelevant the concern that the collateral manager may not find debt securities with the appropriate maturity. Physical collateral is not being sourced; thus the contract can reference the desired maturity up to transaction maturity date. The one caveat is that the credit derivative market is currently not liquid beyond the five-year point and thus provides a market-driven maturity limit.

In synthetic CDOs, the portfolio is typically modeled to five years, the bullet maturity of the transaction. Weighted average life and actual maturity profiles of a portfolio of underlying credit default swaps may alternatively be considered if these are factored in the notionals of the contracts.

In a synthetic CDO, the concept of trading is also slightly different from that in cash CDOs. One way to effect a trade occurs when the manager entices the counterparty to accept unwind of the swap contract. Unfortunately this can be noneconomic relative to selling a cash bond because the counterparty must agree to the unwind and thus holds some leverage over the CDO. This leverage can be assumed to cost something, most easily coming from the spread income. To date there has been relatively little trading in the synthetic CDOs that absorb trading gains and losses. Alternatively, a CDO could book an offsetting trade which could be assumed to render the position "flat" from a credit perspective, and thus the gain or loss is the difference between the two spreads, the premium received in connection with a particular reference entity on which the CDO sold protection and the spread payment due out to a counterparty. In fact, this risk may not be flat the credit. The CDO has hedged the credit risk of the reference entity, but has taken on the new risk of the counterparty's ability to perform. One way to think about it is as an insured bond. The underlying may have a natural rating of "BBB", but the "wrapped" rating is "AAA". It is NOT however, risk-free. It is risky to the extent the insurer does not perform. So too is the new, opposite credit derivative trade risky to the extent the counterparty performs. This risk is typically treated at the new assumed risk of "AAA" on the "package" as long as the counterpart) is rated A-1+. To count as a totally offsetting trade, the two contracts must have identical counterparties, reference obligations, reference entities and terms. Furthermore offsetting trades are included in the discretionary trading bucket to prevent large exposures.

As with cash arbitrage CDOs, so too have managers of synthetic CDOs tried to pick up the language of credit-risk security sales, credit-improved security sales, defaulted asset sales and discretionary sales. However, one must think, again, in terms of spread. These credit-risk securities are defined as those for which the mark has widened by 100 basis points. Credit-improved securities are generally assumed to be credits whose mark to market spread has tightened by 20 basis points. Both definitions have included the manager's discretion provisions typical of traditional cash CDOs. Defaulted exposures are either cash settled or physically settled. Managers retain the ability to make discretionary trades with a limit of between 10%-20% established either for the lifetime or per annum. That differentiation is made based upon the strategy and background of the manager.

#### VIII. REINVESTMENT AFTER THE REINVESTMENT PERIOD

##### A. Cash Flow Transactions

Traditionally, the end of reinvestment period in a CDO transaction means principal proceeds, with the exception of principal prepayment, thereafter will be used to pay down liabilities. As such, noteholders can expect winding-down of their investment based on the priority of the notes they hold in the capital structure of the transaction. From a credit point of view, the amortization of the asset pools brings some interesting consideration. All else being equal, the credit protection provided by the equity position in the transaction increases as a percentage of the transaction (the structure is "de-levering"). At the same time the maturity of the assets is getting shorter and thus most likely the probability of default is getting smaller. At the same time, adverse ratings migration and greater collateral lumpiness can be increasing the portfolio default rate. The sequential paydown structure, coupled with the shorter maturities, affords the senior tranches sufficient protection while they pay down.

More recently, however, Standard & Poor's has seen a marked increase in structures that permit reinvesting principal proceeds after the reinvestment period. Specifically, some structures permit collateral managers to reinvest sale proceeds from credit-risk, credit-improved, and even discretionary trading after the end of reinvestment period. While this trend reflects issuers' desire to keep assets under management for as large and as long as possible, Standard & Poor's views this development as presenting additional risk factors. Primary among them are:

**Back-Ended Default:** Standard & Poor's adjusts its cash-flow stress tests based on the weighted average life of the collateral pool. This limitation stems from the fact that imposing a certain level of defaults based on the original balance cannot be achieved and may be onerous once the pool balance declines past a certain point. If, however, the transaction has the option of maintaining pool balance due to added reinvestment alternatives, Standard & Poor's will likely impose additional stress tests that extend into the reinvestment period to test for the robustness of the structure. If the collateral manager can take a transaction with an eight years average life and turn it into a 12-year bullet pay structure, then that transaction will be analyzed as such.

**Credit Quality Monitoring:** At present, Standard & Poor's monitors the credit quality of the collateral asset pool via the Standard & Poor's CDO Monitor. The CDO Monitor measures total dollar of loss potential and is most meaningful during the reinvestment period. Added trading flexibility while the asset pool is amortizing requires additional tests and ongoing credit quality monitoring.



Interest Rate Hedges: A transaction typically structures its interest rate hedge to the original balance of the pool. This strategy is probably the most efficient and rational one. However, the structure may face more interest rate risk if the original pool is kept for longer than anticipated beyond the reinvestment period. This problem may be especially acute if the structure allows for a mix of fixed- and floating-paying assets. Additional cash-flow stress tests may be called for to examine the impact of longer asset life on the adequacy of interest rate hedges.

Because of these additional risk factors associated with trading activities after the reinvestment period, Standard & Poor's may require additional cash flow stress tests and collateral tests if the transaction proposes reinvestment during the amortization period, depending on the nature and extent of proposed trading activities.

Reinvestment of principal prepayment only: This provision does not require any additional testing if the documents require that the replacement asset should have an equal or better rating and an equal or shorter maturity than the asset it prepays. Alternatively, the indenture can require that Standard & Poor's CDO Evaluator be run, and the scenario default rate has to be maintained or improved, and the collateral manager has to test the hedging structure for adequate coverage. Furthermore, all other reinvestment criteria concerning collateral quality tests and concentration limitation have to be met.

Sale of credit-risk assets: Proceeds must be used to pay down the liabilities or reinvest in the most par possible with equal or shorter maturity; otherwise additional stresses will be tested in the transaction.

Credit-improved and discretionary trade: In the case of sale of credit-improved and discretionary sales, the indenture has to require that sale proceeds be equal to or greater than the principal balance of assets sold. Additional cash-flow stress tests may apply to back-ended default if reinvestment is permitted without the equal or shorter maturity test. The indenture has to require that replacement assets should have an equal or better rating and an equal or shorter maturity than the asset that is traded out. Alternatively, the indenture can require that Standard & Poor's CDO Evaluator be run and the scenario default rate has to be maintained or improved, and the collateral manager test the hedging structure for adequate coverage. Furthermore, all other reinvestment criteria concerning collateral quality tests and concentration limitation have to be met.

## B. Synthetic Transactions

In a synthetic CDO, reinvestment after a reinvestment period is a slightly different concept due to the traditional short bullet structure. If principal returns are contemplated in a five-year structure, consideration must be given to what "de-levering" means. In a traditional synthetic CDO, the funded "AAA" noteholders have a synthetic or "super senior" swap counterparty. The presence of this counterparty leaves the open question of what de-levering means. It can mean the reduction of the notional exposures the super senior swap counterparty takes on. But it must be remembered that the super senior swap counterparty is a contingent participant. It did not put any cash into the deal. Thus, this counterparty is not due a principal distribution. If actual principal return to the AAA noteholder is contemplated, the super senior swap counterparty traditionally opposes such an action because it reduces the subordination protection it would likely be called upon to provide. Thus, the AAA noteholders, who would typically have a shorter expected life than legal final maturity, do not have such an assumption as appropriate in the synthetic CDO. Some transactions require a pro-rata reduction of the unfunded and funded senior-most risk positions,

but that is not a rating requirement of Standard & Poor's.

Interest **Rate**; Hedges: The partially funded synthetic CDO structure typically locks in the **floating**; - **rate**; component of the income due to the **noteholders**; by investing in a GIC or locking in a repo **rate**; of return. The credit derivative spread premium income represents fixed spread income and is used to pay the spread over LIBOR/EURIBOR that is required to service the **noteholders**; . Thus, interest-**rate**; hedges are not typically required. Standard & Poor's cash flow runs that pick up the fixed-**floating**; risk in a typical cash CDO are generally not required in the synthetic CDO.

Sale of credit-risk assets: Proceeds must be used to pay down the liabilities or retained in the structure as credit support against which new credit derivative risk could be written pending the passing of the model run. The CDO Evaluator is typically run for trading eligibility purposes in synthetic CDOs. Certain older structures depend upon limit structures, the bucket approach that seeks to limit risk by limiting the initial portfolio to "ratings" buckets, and substitutions are required to be of the same then-current rating of the exposure being removed or of a higher rating.

## IX. COVERAGE TESTS

### A. Cash Flow Transactions

The coverage tests-overcollateralization (O/C) or par coverage ratio, and the interest coverage ratio (I/C)-are the main financial ratios that drive the manager's decision to "reinvest" cash in new collateral or pay down noteholders during the revolving period.

The par coverage ratio is essentially the ratio of CDO asset par to CDO rated tranche par. This test ensures that there are adequate assets to cover the liabilities, as measured on a par basis.

The typical O/C ratio for senior securities is calculated as follows:

\* Total dollar par of assets in collateral pool

+ Cash

+ Defaulted securities at lower of market or expected recovery rate

\* Divided by

+Total amount of senior securities presently outstanding. In general most transactions have an O/C test for each class of securities issues. Thus there would be a class A O/C test, a class B O/C test, a class C O/C test, etc. Each of the tests below the senior-most security test would also include all the senior securities in the denominator. Thus the denominator of the class B O/C test would be made up of the class A securities and class B securities. Since the numerator of the O/C test is the same regardless of the class, the class B and C O/C tests are lower than the class A test.

With the notable exception of defaulted assets and some special securities, which are given credit for the lower of an assumed recovery rate and market value, the par coverage test does not take into consideration the market values of assets. Furthermore, this coverage test typically makes no adjustments based on asset credit ratings. Recently however, some transactions have started to haircut the par value of certain low rated

securities to the extent such securities exceed certain limits which are higher than the original composition of the asset portfolio. For example, "CCC" securities that exceed 10% of the total asset pool must be included at 75% of the par value. This is done in order to trip the O/C test faster and start delevering the transaction in order to compensate for the added credit volatility associated with a large concentration of low rated securities.

In addition, certain assets with unique cash flow characteristics are afforded special treatment in the O/C test. For example, zero-coupon bonds are treated at their accreted value, and I/O securities and equity receive no credit. Securities that are deferring interest are also accorded special treatment.

The interest coverage ratio (I/C test) is essentially the ratio of interest collected in a given period net of transaction expenses, divided by the interest payable on a respective tranche of the CDO in that period. If the transaction has multiple tranches there will likely be one I/C test per tranche. The I/C test is a liquidity test that ensures that there is adequate interest generated by the assets to cover the interest payment obligations of the liabilities plus a certain cushion. The I/C test is generally set higher than the minimum needed to pay interest on the tranche. If the I/C test failed, the transaction will trap interest and principal collections and pay down the senior notes. The I/C test is both a cash and an accrued interest test. On any determination date the numerator should be given credit only to interest actually received in that period, while on any measurement date within the period, the numerator includes interest collected and interest expected to be received, in the reasonable judgement of the collateral manager. Thus, any interest payable by defaulted securities should always be excluded.

The typical I/C ratio for a senior **security** on determination date is calculated as follows:

\* **Interest** received during period

Expense payable above **interest** payments

+ or - Net swap payments

\* Divided by

Total amount of interest payable on the senior securities.

At this point the money actually received during the period, net of expenses or hedge income or costs, should cover interest payable on the senior securities more than 100%. In general most transactions have an I/C test for each different class of rated notes. Some transactions, however, combine some of the tranches. For example, the senior test might include the class A and B of the securities.

The investor should be aware of subtleties in the definitions of these ratios that might not properly reflect transaction interest cash flow and can distort or overstate interest coverage. An example of such is how hedge receipts or payments are reflected in either the numerator or the denominator. Such differences in treatment make direct comparison of such ratios across transactions difficult and misleading.

The investor should be aware that there are very important subtleties in how coverage tests are managed. Some structures require that the issuer "maintain compliance at all times" and trigger a special redemption whenever a coverage test is failed and not brought back into compliance with the original minimum ratio. If one or more of the coverage tests is

not met, principal proceeds should not be allowed to be reinvested unless the coverage tests are brought in compliance as a result of the reinvestment or trade. This early amortization trigger works to return available cash to rated noteholders sequentially, thereby converting risk into a prepayment.

Other structures have the provision to "maintain compliance or improve" and may permit intra-period noncompliance and collateral substitution. This allows the manager to bring himself closer to compliance after a trade. In such "maintain or improve" structures, there may not be cash available to redeem liabilities sequentially and restore compliance on the next payment date. The investor in a "maintain or improve" structure is buying a CDO that gives the collateral manager more flexibility than a "maintain at all times" structure. One noteworthy "carve-out" in many CDO structures is for credit-risk sales proceeds, which may be reinvested under limited circumstances in order to protect noteholders from credit losses, even if compliance is not immediately restored.

The timing and frequency of test performance is also an important aspect of the effectiveness of reinvestment criteria. In addition to regular monthly and due period measurement dates, any date on which there is a proposed collateral purchase or change in the portfolio (for example, downgrade, default, maturity, or redemption) should trigger recalculation of the coverage tests.

While the coverage tests are designed to buffer rated noteholders from declining portfolio performance through the early paydown of senior notes, such tests are susceptible to collateral manager actions that can delay the paydown at the risk of more severe future losses. Noteholders should scrutinize the manager's reinvestment of sales proceeds to ensure that proceeds are re-deployed in solid credit positions. Take for example a scenario where the par coverage ratio falls below the set threshold between payment dates due to the default of an asset. At this point, the par credit assigned to the defaulted asset is the lower of market value or assumed recovery rate. Let's say it's \$40. The collateral manager is able to bring the coverage test back into compliance by selling the defaulted

**asset** for \$40 and **purchasing** a performing **asset** at par of \$100 with the sales proceeds. Let's also assume that the interest rate on this asset is at the current market rate. The credit for the new asset of \$100 par brings the test back into compliance. The manager averts early pay down of the senior notes, thus allowing the interest and principal proceeds to flow down the waterfall at the next payment date. Both the noteholders and equity investors receive payments and the manager has built par back into the deal. Unfortunately, the scenario likely doesn't end here. By **purchasing** the replacement **asset** at \$100 par with \$40, the manager acquired the **asset** at a heavy discount that the market deems highly likely to default. Should this asset subsequently default, the transaction is back to the earlier predicament but some proceeds have already been passed on to the equity investors. In such a situation, the noteholders would have been better served had the manager **purchased** \$40 par of an **asset** with solid credit fundamentals. The par coverage test failure would trigger early partial redemption of the senior notes, but the portfolio would have a stronger credit base.

It is also possible that the collateral manager arbitrages the test through discretionary sales. Assume that a transaction is failing its coverage tests and a collateral instrument is scheduled to pay down the day before the period end and the determination day. Thus the money would be available to delever the transaction on the payment date. To avoid paying down, the collateral manager could simply sell the security as part of discretionary sales, and then reinvest the proceeds in new collateral that has a maturity date later in the future. For these reasons, Standard & Poor's requires

that the transactions be modeled assuming that no scheduled principal is available for paying down on O/C or IC test failures during the reinvestment period. Generally only recoveries on defaulted securities and excess spread are used to pay down during the reinvestment period.

## B. Synthetic Transactions

Synthetic CDOs also have coverage tests as seen in cash flow CDOs, the overcollateralization ratio (O/C), and the interest coverage ratio (I/C). There is much discussion about eliminating the I/C test in a synthetic CDO as the total spread income coming into the portfolio, due to the leverage, usually dwarfs the real risk of having interest coverage shortfalls. But, not surprisingly, Standard & Poor's has seen portfolios where loss of one, two, or three of the highest-spread derivatives exposures could lead to the payment-in-kind (PIK) of the lowest-rated security. As a result, Standard & Poor's does usually require an I/C test, in certain structures, enough comfort can be drawn from a minimum spread test that the I/C test could be eliminated.

Because a large portion of a synthetic CDO is supported by an unfunded liability (typically a "super senior swap") and therefore the leverage afforded off funded notes, these coverage ratios are primarily used to trap cash, not to pay down noteholders but to divert cash into the collateral account to build subordination. But there are exceptions. In "hybrid" transactions where there are characteristics of both cash flow and synthetic CDOs and in some of the more recently structured synthetic CDOs, there are instances where the tripping of O/C and I/C tests leads to amortization from "super senior swap" on down the different classes. Additionally, in synthetic CDOs where all excess spreads are trapped to build subordination, there are obviously no O/C or I/C tests.

How the O/C is defined in a synthetic structure is driven by whom the O/C is aiming to protect. If the funded noteholders are those that are to be protected, the likely O/C ratio is defined as the ratio of funded note proceeds par to tranche par. Funded note proceeds are typically deposited into a guaranteed investment contract (GIC), a reverse repurchase (repo) agreement using appropriate collateral, or purchase of very high quality corporate paper with market risk removed, for example, through a par put agreement. All of the counterparties involved, whether it is the GIC provider, the reverse repo counterparty or the put provider, are subject to rating downgrade trigger to ensure the availability of resources to pay for credit protection upon credit events. The typical O/C ratio for senior securities is calculated as follows:

\* Undrawn amount of funded noteproceeds

+ Cash

+ Defaulted securities at lower of market or expected recovery rate

\* Divided by

Total amount of senior securities presently outstanding.

Most transactions have an O/C test collectively for the senior class securities and the junior class securities. For example, there would be a class A, B, and C O/C test. Each of the tests below the senior-most security test would also include all the senior securities in the denominator.

While there are structural provisions to minimize the market risk in funded note proceeds, some of the more recent synthetic CDOs have adopted similar haircut to the par amount of the high-grade collateral, itself a

contra-liability, depending on the credit quality of the assets. For example, if the notional amount of credit default swaps written referencing B+ or lower rated obligors exceeds 1% of the portfolio, for the computation of the par amount of the collateral, it is haircut by 20% of this excess. Thus the O/C will trip sooner and cash will be diverted more quickly into the collateral account.

Since trapped cash in synthetic structures is often relevered through the synthetic CDO writing more credit default swaps, how much credit exposure can be written is ultimately governed by a synthetic exposure to synthetic coverage ratio. This ratio is aimed at protecting the unfunded and funded investors as well as credit default swap counterparties. It is calculated as follows:

- \* Total amount of credit default swaps written
  - defaulted or credit event credit default swaps
  - hedged credit default swaps
- \* Divided by

Undrawn "super senior swap"

- + cash
- + funded note proceeds in the collateral account
- net undelivered defaulted credit default swaps

The ratio has to be less than or equal to 1, so that synthetic coverage is always enough to cover synthetic exposure.

In structures where the protection of the super senior swap provider takes on priority, we will likely see the super senior swap notional in both the numerator and denominator, so that the senior O/C is now calculated as:

- \* Undrawn amount of funded note proceeds
- + Cash
- + Defaulted securities at lower of market or expected recovery rate
- + " super senior swap"
- \* Divided by

Total amount of senior securities presently outstanding

- + "super senior swap"

The I/C ratio is calculated as follows:

- \* Premium received from credit **default** swap written
- + **interest** income from funded note proceeds in a given period
- \* Divided by

Insurance premium payable to an unfunded tranche or tranches

- + interest payable to a funded tranche or tranches of the CDO in that period.

The I/C test is set higher than the minimum needed to pay interest and

insurance on the tranches. But again the same distinction from cash flow CDOs holds. If the I/C test fails, cash trapped will only go into the collateral account to build subordination but notes will not be amortized.

Similar to cash flow CDOs, on top of regular monthly and due period measurement dates, any date on which there is a trading, hedging, or changes in the existing portfolio such as downgrade, default or maturity should trigger recalculation of the coverage tests.

#### X. COLLATERAL QUALITY TESTS/ PORTFOLIO PROFILE TESTS

In addition to coverage tests, collateral quality tests serve as a "blueprint" for eligible collateral and for portfolio parameters during the revolving period. For example, an arbitrage transaction may allow collateral debt securities that are U.S. dollar denominated from U.S. issuers with a minimum issuer credit rating of 'B-', and no more than 8% total principal balance of collateral debt securities may be from the same industry. Such limitations are not imposed by Standard & Poor's, but generally by the investors, since Standard & Poor's uses the CDO Evaluator (see the "Sizing Defaults" section) to size default risk and the Evaluator uses correlation between assets in the same industry and can handle assets with any issuer rating.

Other trading and reinvestment criteria may include par replacement criteria (for example, the principal amount of the purchased collateral debt security at least equals 100% of the principal amount of the sold or paid down collateral debt security). In contrast to coverage tests, many of these reinvestment and trading criteria are qualitative and dependent on availability of desired collateral in the market. Consequently, some structures give the issuer the flexibility to reinvest cash to be closer to compliance if a failure occurs.

Covenants to maintain the portfolio at or above a minimum weighted-average coupon (WAC) for fixed-rate assets and minimum weighted-average spread (WAS) for floating-rate assets are common portfolio profile tests. Such measures are necessary to facilitate the modeling of the cash flows in transactions that have revolving collateral pools. An alternative to these tests is a covenant to replace interest with interest for each trade.

One particular collateral quality test that deserves mention is designed to limit individual asset and/or portfolio maturity. Typically, collateral eligibility definitions include individual or discrete maturity restrictions (for example, all collateral debt securities must mature prior to the stated maturity of the notes). Pool parameters may include a weighted average maturity (WAM) limit on the portfolio.

Any number of portfolios could satisfy these guidelines, including the following three sample portfolios: a portfolio of all short-term securities maturing within one year and then having to be reinvested; a bar-belled portfolio of short- and long-term securities; or a portfolio with equal amounts of principal maturing in every year of the transaction.

As much as it would simplify the analysis and management of collateral, the portfolio with equally sized, evenly distributed maturities is not typical in CDOs given the nature of the corporate debt markets. In fact, a "barbell" distribution with a portfolio concentrated in the short- and long-term ends of the maturity spectrum can occur, given that the cash flow characteristics of the assets differ, and that the portfolio changes over time. Such a skewed portfolio may be permissible under collateral stated maturity limits or a portfolio WAM requirement. For "barbell" or at least "lumpy" CDO portfolios, investors should be aware that sole reliance on arithmetic weighting, averaging or aggregation of maturities may not effectively measure the risk or effect a prudent reinvestment decision. For

this reason, Standard & Poor's used the CDO Evaluator and CDO Monitor to factor in the characteristics of the portfolio into the default estimation.

Analysts review the issuer-provided reinvestment or trading guidelines—the collateral quality and portfolio parameters discussed above—to determine that each new asset meets certain eligibility requirements before it replaces an asset. As mentioned, the manager may choose to run the CDO Monitor, in addition to checking coverage ratios and collateral quality tests, to assess the portfolio and the impact of reinvestment on an ongoing basis. Such regular testing gives the manager access to "updated" portfolio information for his consideration in the decision to reinvest cash.

If the manager chooses to use the CDO Monitor for a replacement test, analysts will request copies of the results. If the default rate of the pool after replacement is less than or equal to the default rate of the pool before replacement, the replacement can occur without causing deterioration in the pool credit quality or significantly increasing expected defaults over time. The manager may run the CDO Monitor to see the default rates on the pool with and without replacement, compare the results with the "break-even" default rate and portfolio assumptions applied in the transaction, and make his decision. A rating action may be taken if, upon replacement, the portfolio quality deteriorates.

Alternatively, if the manager is not using the default model, he need only check that both the "before" and "after" positions are within the collateral eligibility criteria. In this latter case, the original credit enhancement level is based on "stressed" eligible portfolio composition with maximum allowable asset credit risk. Therefore, in general, the original credit support should still cover this risk as long as the portfolio quality remains within these assumed stressed collateral quality parameters, and the manager tests and maintains compliance with coverage tests. Standard & Poor's requests that the issuer provide pool information monthly and immediately notify us of any CDO Monitor failure.

#### XI. PRIORITY OF PAYMENTS

The principal and interest "waterfalls" drive the transaction's allocation or distribution of cash flow down the capital structure. Even synthetic CDOs have cash waterfalls that dictate how premiums, interest, and cash from the collateral accounts will be distributed. These distributions may occur periodically in cash flow transactions, at the end of the transaction in synthetics, or sooner should a transaction unwind due to a transaction event of default.

As one would expect, in senior/subordinated structures, the most senior, highly rated tranche should have priority in the principal and interest waterfalls. Subordinated tranches are in place to provide credit support, which, for example, may translate into deferring interest receipts while the transaction tries to build back its O/C tests. Junior investors, however, have their own return hurdles. Usually, the investor will invest in a single rated or unrated tranche position in the capital structure. When several tranches are rated, however, the "trade-offs" across classes and waterfall mechanics can become quite complex, as differing interests compete for the same collateral cash flow. In most transactions, the ongoing hedge payments (if hedges are used in the deal) are senior to the seniormost class. Ongoing is the exchange of periodic interest. Hedge termination payments may or may not be above the senior-most class, but are situated after the capped transaction expenses. Under Standard & Poor's CDO criteria, since future hedge termination payments are very difficult to accurately size, any termination payment due from the SPE to any hedge counterparty must be subordinated to the



investment-grade noteholders, if such payment is due because the counterparty defaulted on its obligations. If the payment is due to the SPE defaulting, then it may be senior in the waterfall.

The majority of transactions to date use separate priorities of payment for interest and principal and consequently bifurcate all cash receipt into interest proceeds and principal proceeds. Standard & Poor's looks closely at these two "buckets" to ensure that principal receipts are not inadvertently passed down the interest waterfall to the equity investor. Similarly, the analyst checks that all sources of payment are covered within these definitions. The inclusion of catch-all language in the principal proceeds definition to cover any unanticipated items is preferred.

From the perspective of the investors in the rated notes, stronger deal structures will include trapping trading gains in principal proceeds which allows the manager to increase overcollateralization to support the notes. Conversely, investors should note that some transactions divert a portion of the unused proceeds to the interest waterfall after the end of the ramp-up period. To the extent unused proceeds result from **purchases of assets** at significant discounts, the manager is potentially exposing the noteholders to additional credit risk while flowing the proceeds to the equity holders. Careful attention to the definitions of principal proceeds and interest proceeds is therefore warranted. As a general rule Standard & Poor's considers all money recovered on defaulted securities, either through sale or work-out, up to the par of the security to be principal proceeds.

The priority of payments will also differ from transaction to transaction. Following the breach of a coverage test, most CDOs use interest proceeds for paydown of senior notes and will utilize principal proceeds only to the extent of a shortfall, but some deals start delevering with principal proceeds. Most cash flow transactions will also delever sequentially beginning with the senior-most outstanding tranche. However, under certain conditions, some waterfalls might pay pro-rata or divert the paydown to a subordinated tranche. In general, the analyst looks closely at what is released through both the principal and interest waterfalls to junior debt holders and equity holders while senior debt is outstanding and will apply additional stresses to the cash flow modeling to ensure adequate subordination protection to the senior tranche. Some of the additional features the analyst will look at in the priority of payments include the following:

- \* A cap to the payment of administrative expenses and fees to various participants such as the trustee and paying agent senior in priority to payments on the notes. Otherwise, it is difficult to adequately model the cash flow.

- \* The senior collateral management fee should be adequate to entice a replacement collateral manager should such substitution become necessary. If the fee is too low, Standard & Poor's will stress cash flows at an appropriate fee.

- \* Triggers that can switch payments back and forth among different waterfalls. Such triggers are very difficult to model because specific transition paths must be modeled. Because of this difficulty such triggers are not common.

- \* As mentioned, termination payments to the hedge counterparty triggered by hedge counterparty default or termination event should be subordinated to the payment of rated notes.

Some CDO transactions will combine the payment of both interest and principal into one waterfall. The same concerns cited above apply, and the analyst needs to carefully scrutinize the definition of principal distribution amount to identify any potential leakages to equity.

## XII. DEFINITION OF DEFAULTS

### A. Cash Flow CDOs

The two most important factors in Standard & Poor's assessment of required credit enhancement for rated notes are the frequency of defaults and the loss severity stemming from defaults. The events of default for the underlying assets need to be clearly defined and consistent with those applicable to Standard & Poor's default study, which is used as the basis of the CDO Kvaluator. Standard & Poor's considers the following to be events of **default** for an asset:

- \* Failure to pay **interest** or principal in whole when due;
- \* Designation by Standard & Poor's of 'D' or 'SD';
- \* Initiation of bankruptcy, insolvency, or receivership proceedings.

In addition to these items, the judgment of the collateral manager to deem an asset as defaulted based on reasonable belief of pending default should be included collateral manager to protect the noteholders since more defaults will trigger the par coverage test and cause early partial redemption of the senior notes.

Absent properly defined events of default, the intent of the par coverage test to limit credit exposure to the senior notes is weakened. A collateral manager who manages to equity would be able to treat such severely distressed assets at par for purposes to the par coverage test to avoid delevering the deal and pass the proceeds to the equity investors.

Standard & Poor's allows two carve-outs where obligations of an issuer with an ICR of 'D' or 'SD' are deemed performing. These carve-outs are debtor-in-possession (DIP) facilities and certain current pay instruments.

### B. Synthetic CDOs

The CDO Evaluator measures the probability of default on an underlying instrument. The default matrix used is based on Standard & Poor's Corporate Default history, but altered slightly to account for certain mathematical abnormalities and to yield consistent results. In order to put a credit estimate on a synthetic, the definition of default on the synthetic must be consistent with the definition of default used in the default study. In concept, the acceptable default definitions are as follows:

- \* Payment default on the reference obligation,
- \* Bankruptcy of the reference obligor,
- \* Material cross-default with another debt instrument ('SD'), and
- . Downgrade to 'D', or withdrawal, of the Standard & Poor's rating.

Synthetic CDOs typically are transacted under the 1999 ISDA, which was designed explicitly for credit derivatives. The following "Credit Events" with regard to the reference obligation, sometimes referred to as "Big O", are currently accepted by Standard & Poor's in synthetic CDOs. They are broader than what is accepted for small baskets, which are typically

weak-linked ratings. This difference is based on how dependant upon timing considerations the CDOs, the credit-linked notes (CLN), or single-name credit derivatives are. An example is to say a company accelerates its debt due to a covenant violation. If obligation acceleration were to be called a credit event in a small basket CLN, the investor would automatically lose money at that moment. The synthetic CDO builds in the luxury of time in which we can wait to see if the acceleration was rescinded, or whether the debt was paid in full. If it was, the synthetic CDO investor suffers no loss. This is a simple but crucial example of why credit events may work for one but not the other structures.

It should not be misunderstood; the simplest and best credit derivative is the one that contains only bankruptcy and failure to pay. Each of the other credit events creates more fuzziness around the definition of default. However, the other credit events are largely captured in Standard & Poor's default study. Some, however, are not as, for example, restructuring with regard to the unrated nonpublic loan market for which banks have not been able to supply Standard & Poor's with default data and restructuring with regard to certain cases in which the restructuring constituted a downgraded but not default rating. Standard & Poor's believes that the modification made to the Restructuring credit event goes a long way to solving some of the problems and thus accepts it as a credit event. Non-modified restructuring requires a probability adjustment to reflect the increased probability of experiencing a defaulted Reference Entity.

For corporate credit exposures, Standard & Poor's allows the following credit event:

- \* Bankruptcy,

- \* Failure to pay, with the standard payment thresholds, and

- \* Obligation acceleration.

Obligation acceleration is accepted using the following logic: A trustee may declare an event of default for myriad reasons, but will initiate acceleration only if it is determined that fiduciary duty mandates action of that severity. Once a declaration of acceleration is made, it only qualifies as a "credit event" under the 1999 ISDA if knowledge of this acceleration is available via "Publicly Available Information" (WSJ, Bloomberg, etc.).

Such knowledge, it is assumed, will lead to massive action by lawyers to protect clients' interests by initiating acceleration on all liabilities of the obligor in question. Thus, all obligations will immanently either be paid or defaulted upon. If default occurs, it is picked up in the default study. If all obligations are paid, the credit event ostensibly leads to settlement at par as long as you either have physical delivery or cash settlement outside of the window required for this to play out (45 business days or 60 calendar days has been deemed sufficient).

- \* Repudiation/moratorium: the sovereign rating captures the likelihood of moratorium. The rating of a corporate obligor is typically constrained by the sovereign's rating.

- \* Restructuring is accepted with the potential probability adjustment noted above. Alternatively, further modifications to the language may be accepted so as to mitigate the added risk of the restructuring credit event. Restructuring only qualifies as a "credit event" if the publicly available sources requirement is retained in the ISDA.

Standard & Poor's explicitly does not accept "Obligation **Default**", as this includes all technical defaults such as

**interest** coverage ratio violations, which are decidedly not equal to **default** as defined by Standard & Poor's in the default study.

For structured finance obligations in synthetic CDOs, Standard & Poor's limits the acceptable definition of default to:

- \* Bankruptcy of the SPE,

- \* Failure to pay within the stated payment terms, and

- \* Downgrade to 'D', or withdrawal, of the Standard & Poor's rating. The other credit events are not consistent with structured finance structures, where the subordinated tranches are there to provide credit protection and may only receive distributions at the legal final maturity of the transaction.

Nik Khakee  
Standard & Poor's

Elwyn Wong

Standard & Poor's

NIK KHAKEE is a Director in Standard and Poor's Structured Finance Group and serves as Global Go-Head of Derivative Ratings. He is also the Co-Head of CDO criteria and is primarily responsible for development and implementation of credit derivatives ratings criteria. Nik is also the senior analyst regarding credit enhanced Derivative Product Companies, Structured Investment Vehicles, Synthetic CDO's, Credit Derivative Operating Vehicles and Quasi Operating Entities.

Nik joined Standard & Poor's Financial Institutions Division in June 1996. Nik joined the Structured Finance Division's Derivative Ratings Group in 1998. Prior to joining Standard & Poor's, he worked in money management with a mutual fund family, a hedge fund and a business management firm. Nik received his Masters in Public and Private Management degree from Yale University's School of Management in May 1996. His areas of concentration were Strategy and Finance. Nik received an academic letter of commendation from Yale. Nik was also selected by Yale to be a Strategy Case Series Writer and is the author of "Chase - The Strategic Plan for Recovery & Merger". He received his Bachelor of Arts from New York University where he graduated with honors.

ELWYN WONG is a Director in Standard and Poor's CDO Group. He is an analyst responsible for credit enhanced Derivative Product Companies, Structured Investment Vehicles, Synthetic CDO's, Credit Derivative Operating Vehicles and Quasi Operating Entities.

Prior to joining Standard and Poor's, Elwyn was a Director in the Structured Finance Group of Prudential Securities, responsible for structuring, repackaging and hedging strategies associated with securitization across asset classes. He has extensive experience in the derivatives market managing fixed income and municipal derivative trading for a predecessor of Sumitomo Mitsui Banking Corporation Capital Markets. He was also involved in investment grade fixed income origination for Prudential Securities and Daiwa Securities. Elwyn began his career with Bankers Trust in their Asset Liability Management Division. He graduated with an M.B.A. in finance from Columbia Business School and a M.A. and B.A. in economics from Cambridge University.

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**Abstract:**

Having benefited from a dedicated legal framework for more than a decade, France is one of the oldest European securitization markets. However, compared to other jurisdictions, which only recently gained similar regimes, the French market may be perceived as having lost some of its lead. The uncertainties deriving from the pending discussions of the Basel II Committee have caused fears in France. Some of the main concerns caused by the structure of the French market may also help explain its present status. There are still excellent prospects for the French market. This is for at least two reasons: 1. interesting classes of assets are available and await exploitation, and 2. innovation has not deserted the market.

**Text:**

Having benefited from a dedicated legal framework for more than a decade, France is one of the oldest European securitization markets. However, compared to other jurisdictions (such as Italy or Spain), which only recently gained similar regimes, the French market may be perceived as having lost some of its lead. In addition to the adverse impact of troubled economic conditions, various concerns affect the perception of foreign observers and the appetite of local originators. Notwithstanding these obstacles, a more detailed analysis of the market's structure shows that favourable perspectives still exist: promising asset classes await exploitation and new financial solutions confirm that the innovative trend seen in the recent past has not vanished. This article aims to describe in more detail this paradoxical phenomenon.

THE FRENCH LEGAL FRAMEWORK: A BRIEF REMINDER The introduction in France of a bankruptcy remote securitization vehicle, the fonds commun de creances (FCC) dates back to 1988 when the law of December 23 1988 on securitizations and the decree of March 9 1989 (referred to in this article together as the Law) were brought into effect. Originally, the Law was

tailored solely to meet the needs of financial institutions: other potential originators had no choice but to put in place structures involving non-French special purpose entities (SPEs). The recourse to these offshore securitizations being perceived as too onerous and risky, only a handful of major French corporates opted for this solution until 1998, while others remained frustrated. Thanks to a progressive widening of the Law's remit, the number of transactions in which FCCs were elected as SPEs increased gradually. Offshore solutions remain available as an alternative, the structure chosen depending upon, among other things, the characteristics of the underlying assets and technical constraints borne by the parties involved. For example, instead of being acquired by an FCC, trade receivables can be transferred outside of France by the originator to the benefit of an EC-based credit establishment (such as a Dutch bank), which will act as intermediary vehicle and onward seller towards the final purchaser.

#### MARKET PARTICIPANTS: WHAT ARE THEIR LOCAL STRATEGIES?

A number of French financial institutions regularly tap the securitization market. Among them, BNP Paribas' subsidiaries, Cetelem (consumer loans) and UCB (residential loans) are the longest-standing recurrent originators. Both companies launched master trust FCC structures (Master Noria and Master Domos) which both issue new series of FCC units every year.

On the corporates' side, while most of them issue only on a one-off basis, some major industrial groups (such as PSA, the French car manufacturer now consider that their securitization programmes can be used as permanent financing tools, in addition to credit facilities or commercial paper issues. On the arrangers' side, the competition is fierce: French banks play a dominant role, while the local arms of foreign banking institutions try to leverage locally their global presence to gain a more significant market share.

Compared to the rapid growth of the more recent Italian, German and Spanish markets, the development of the French market may be perceived not to be as explosive as anticipated only a couple of years ago. This being said, recent transactions show that several segments of the French market are still growing.

\* The Commercial Mortgage Backed Securities (CMBS) market continues to experience a surge of issuance caused by the outsourcing needs of corporates, such as ProLogis, EDF and Thal&s, which all externalize their real property assets with a view to achieving their debt-reduction strategies.

\* The European Collateralized **Debt Obligations** (CDOs) market proved to be the fastest growing asset class for the first half of 2002. In France, CDOs make up a significant market share of more than 25%. Interestingly, active originators of 2001, such as Axa and BNP Paribas, continue to build their presence in this market.

\* According to Moody's, France represented 22% of the European Asset Backed Securitizations (ABS) market as at May 31 2002, up from 11% in 2001. Consumer credits and auto loans-backed transactions appear to be developing rapidly. The presence of repeat issuers, such as Cofidis, Socram or PSA indicates that the market has now matured.

#### MARKET CONCERNS: IMPACT ON TRANSACTIONS

Some of the concerns listed below are not uniquely French, but their impact may be more significantly in France than in other countries.

Regulatory concerns

The uncertainties deriving from the pending discussions of the Basell II Committee have caused fears in France. Indeed, despite the general friendly principles set forth by the Committee, some of the measures envisaged will have an adverse effect. Notably, the use of an adjustment factor in the weighting scale applicable to ABS securities is seen as a discriminatory measure that will penalize asset-backed securities compared to corporate securities. Fortunately, the Committee announced in July an extension of the agenda initially envisaged, with the new system now to be put in place before the end of 2006.

However, regardless of the fact that the Basel II consultation process is continuing, the Commission Bancaire (the French banking supervisory authority) took the view that new rules had to be put in place with immediate effect. Accordingly, it published a notice saying that, from May 1 2002, the amount of net equity allocated to these transactions had to be adjusted by reference to the risk exposure of French banks, and no longer solely dependant upon their operational role. This position has been perceived by professionals as an handicap to the French market and a direct threat to the global market, should foreign regulations and the Basel II Accord finally mirror this notice.

#### Legal concerns

The Law has created a sound and stable legal framework, which provides originators and arrangers with a high level of certainty when they seek to structure an FCC-based transaction. However, some other local regulations still limit the further expansion of this technique, the most notable obstacles being those imposed by French insolvency laws, which render difficult the securitization of future receivables, despite the fact that this is expressly permitted by the Law. A prompt amendment of these regulations being unlikely, complex structures must be put in place to bypass these constraints. More favourably, the Council Regulation (EC) n deg 1346/2000 on insolvency proceedings having a cross border effect, which entered into effect on May 31 2002, now offers a clarified framework (although it does not harmonize insolvency laws across Europe) which will benefit pan-European transactions, notably those originated from France.

#### Accounting concerns

It is now months since the collapse of Enron, but the adverse effects of the scandal remain perceivable. Many arrangers remark that it has caused transactions to be put on hold. Solving the accounting issues relating to securitizations is seen by many specialists, notably the analysts of Standard & Poor's, as one of the big future challenges for the market.

#### Structural concerns

Some of the main concerns caused by the structure of the French market may also help explain its present status.

- \* The awareness of corporates as to the variety and value of their securitizable assets still needs to be developed. Numerous potential first-time originators exist, but they still need to be reassured and educated.

- \* Monoline insurers are still observing the French securitization market, their participation as yet remaining rare. The recent creation of CIFG (the monoline-arm of the French-based CDC Ixis) may be a sign that things are on the move.

- \* The public sector is still absent from the market, a notable contrast with Italy or Greece. Bearing in mind the recent views of Eurostat

regarding the Italian state's securitization programme, the participation of the French public sector could add significant depth to the market.  
MARKET PERSPECTIVES: THE BEST IS YET TO COME

Despite the disappointing growth of the market and the concerns summarized above, there are still excellent prospects for the French market. This is for at least two reasons: firstly, interesting classes of assets are available and await exploitation; secondly, innovation has not deserted the market.

#### SOME FASHIONABLE ASSET CLASSES Industrial and commercial real property

Commercial-mortgage-backed securitizations (CMBS) are experiencing a boom in Europe with France being part of that trend. Confronted by severe market conditions, corporate entities are forced to refocus on their core businesses and seek to dispose of their real property assets. If they opt for a securitization (instead of a straightforward sale), various legal and tax obstacles require that a two-tiered structure be designed: a sale of the real property assets to dedicated SPEs (for example, 54 entities were involved in the EUR458 million Dyonisus CMBS originated by EDF) and their subsequent leaseback to the seller is implemented. Such acquisitions are financed by non-recourse/secured loans provided to each SPE by a bank. The receivables and all ancillary **security interests** under the loan are transferred pursuant to the Law to an FCC, which in turn finances this purchase by way of the issue of units. The chart provided gives for a simplified example of a CMBS deal involving an FCC as pivotal vehicle.

#### Private banking receivables

French private bank Odier Bungenier Courvoisier (OBC) completed a landmark transaction when the EUR200 million **floating rate notes** issued by Etoile 2002-1 BV successfully tapped the market in May this year, with the most senior tranche gaining a AAA rating. Thanks to a synthetic structure, OBC managed to securitize for the first time a portfolio of loans to high net worth individuals. Among the interesting features of this transaction was the fact that the data relating to the individuals had to be protected. The regulatory capital relief so gained by OBC will certainly encourage other private banking institutions to replicate this structure.

#### Project finance loans and bonds

Securitization techniques, notably in their synthetic form (Project CDOs), may be seen by the project finance sector as the next frontier to be conquered. On the sponsors/borrowers' side, Project CDOs will broaden the scope of the financing solutions available, especially at a time when a relative credit crunch is prevailing. On the lenders' side, the loans made available to projects could usefully be securitized, notably by the French banks that are active in this area, since they all need to optimize their risk exposure, profitability and regulatory capital relief. For investors, Project CDOs also represent an efficient way to diversify the risks inherent in individual project loan/bond investments.

#### Inventories

According to Moody's, there is a growing demand in Europe for ABS transactions backed by inventories of industrial companies. The first transactions in the French market concerned two Champagne producers: the first was the now famous EUR396 million Marne et Champagne deal closed in 2000 and the second was FCC Cote des Noirs, a EUR55 million transaction backed by the inventory of Delbeck Bricout Martin completed at the end of



2001. So far, inventory securitizations have been backed by luxury goods (such as the inventory of diamonds backing the Rosy Blue Carat transaction), since these assets maintain or increase their value over time. These advantages can also be delivered by other types of inventories, such as commodities or timber. There seems to be the potential for a new generation of inventory securitizations waiting to be unlocked.

#### AN INCREASED RANGE OF INNOVATIVE SOLUTIONS

##### Pan-European structures

Strictly speaking, pan-European securitizations are not new technical solutions. However, be it a CMBS public-listed transaction (such as the EUR356 million **floating rate note** Pan-European Industrial Properties Series II issue secured by collateral comprising a portfolio of 39 facilities located in five countries) or an ABS multiple class deal (such as the auto loans receivables portfolios held by Fiat Credit France and Tarcredit over Spanish and French debtors, as securitized through the EUR800 million European Auto Securitization 2002 vehicle), the variety of legal and tax regimes involved renders the structuring of these transactions particularly complex. FCCs are well adapted to participate as SPEs in transactions based on trade, auto loans or consumer credit receivables.

##### Whole-business securitizations

Since January, a flood of articles relating to whole-- business securitization (WBS) has appeared in the French press. Despite the fact that during the same period, WBS suffered a significant downturn in volume of issuance, these articles indicate at least that there is a marketing interest for this technique. Most of the authors praise the effectiveness of this solution as it is used in the UK (for example in the UK Hospitals transaction) or Germany (the recent Tenovis securitization), but admit that its adaptation in France will be somehow problematic. Indeed, although suitable French corporate entities enjoying stable and predictable cash flows over a long period of time are relatively easy to find, some specifics of the legal framework prevent a mere pro forma duplication of whole-- business structures from abroad.

The first notable obstacle consists of the absence of a **security interest** providing for legal effects similar to the English-law fixed and floating charge. The second hurdle derives from French bankruptcy law, which is essentially court-led and debtor-friendly. With no equivalent to the UK receivership existing in France, upon the collapse of the company whose assets are used as collateral to the WBS, there is no possibility for its creditors to jump into the driver's seat. Instead, they have to follow the insolvency proceedings' agenda including formalities as managed by the judicial administrator under the local court's control. This does not sound too appealing for foreign institutional investors. This pessimistic view is however to be tempered: many French legal concepts have proved to be flexible enough to permit the completion of innovative transactions.

##### Asset Backed Commercial Paper/ABS deals

Securitization experts try to adapt to the French market a new solution designed to fill the financing gap caused by difficult market conditions. This technique consists of securitizing short-term assets (such as trade receivables) by way of an asset backed commercial paper (ABCP) transaction, which will in turn be refinanced by an ABS deal. Adopted in 2001 for Telecom Italia, this solution could be well-suited to transactions involving telecoms companies. However, various technical hurdles still need to be resolved, such as putting in place effective protection against the

commingling risk or early amortization of the ABCP programme.

#### Hybrid cash/synthetic arbitrage CDOs

Will static CDOs soon be out-of-fashion? Part of the answer will depend upon the interest shown by Axa's competitors to its EUR210 million Jazz CDO I launched earlier this year. This transaction is interesting because its innovative structure combines cash flow CDO elements (**purchase** of a collateral consisting of investment grade **assets** out of the proceeds of the notes issued) and synthetic CDO elements (provision of a protection through a CDS portfolio). Another first saw Deutsche Bank acting as lender to the issuer of a EUR1.7 billion revolving credit facility, the advances notably being applied to make the initial payment due for the purchase of a total return swap. Standard & Poor's indicates that similar blend transactions will be launched shortly.

#### CONCLUSION

A (too) hasty examination of the half-year figures concerning the French securitization market would lead foreign professionals to conclude, incorrectly, that France is not an interesting battlefield. If one must admit that the country's recent performance is a bit disappointing, a more careful analysis of the market's characteristics may direct professionals to a different conclusion: the size and pre-eminent role of the French economy in the EU, the financial sophistication of its banks/corporates and the dynamism of certain asset classes are competitive advantages that need to be further developed. Blue and promising skies may well not be far away. Many market participants (including the rating agencies) report that the pipeline is well loaded with a number of large or innovative transactions which have been put on hold until now.

By Luc Rentmeesters and Pierre Tallot, Allen & Overy, Paris

#### LUC RENTMEESTERS

Allen & Overy

Luc Rentmeesters is a partner in the Banking & Finance department of Allen & Overy. He has extensive experience of banking and finance transactions, his practice encompassing a wide range of cross-border financial matters. Luc has acted as lead counsel for arrangers and credit enhancers involved in domestic and international structured finance transactions and securitizations. Luc is an Avocat A la Cour and a member of the Paris Bar.

#### PIERRE TALLOT

Allen & Overy

Pierre Tallot is a senior associate in the Banking & Finance department of Allen & Overy. His practice encompasses all types of structured finance transactions and notably securitizations. Pierre holds a MBA, a doctorat en droit (PhD), and is an Avocat a la Cour and member of the Paris Bar. He regularly publishes press articles relating to business law.

#### THIS IS THE FULL-TEXT.

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**Deutsche asset management embarks on its first euro CDO.**

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Deutsche Asset Management (DeAM) in London is launching its first collateralized **debt obligation**--a (euro)483 million arbitrage deal named Beethoven CDO--with a little help from its sister firm DWS Finanz-Service, which is also under the Deutsche Bank umbrella. The CDO's underlying collateral will consist of **investment**-grade bonds, asset-backed securities and credit **default** swaps, according to George Sun, analyst at Standard & Poor's in London. Calls to Deutsche Bank were not returned. DWS is technically the CDO's adviser and will make the decisions on which assets to buy, says Sun, but the deal is being launched under the DeAM umbrella. "DeAM is getting some assistance from its sister company on its first CDO," says Sun. DWS has already done at least three CDO transactions and is an experienced manager, he adds.

Most of the **notes** issued will be **floating-rate**, as the majority of the **assets purchased** by the CDO will be fixed. Each interest-**rate** swap will be tailored to the individual fixed-**rate assets purchased**, and, for the time being at least, Deutsche Bank will act as the swap counter party. However, because the swaps will be executed on an asset-by-asset basis and down the road, DeAM and DWS may change swap providers. The deal, which is meant to cater for increased investor appetite for the asset class, should be launched sometime this month.

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**106/9/19 (Item 19 from file: 610)**

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**The Pomerantz Firm Announces Class Action Suit Against Rent-Way, Inc.**

**Business Wire**

**Wednesday , November 1, 2000 17:21 EST**

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(Edgar Online via COMTEX)

Company Name: JORGENSEN EARLE M CO

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

RESULTS OF OPERATIONS: SIX MONTHS ENDED SEPTEMBER 28, 2000 COMPARED TO SIX MONTHS ENDED SEPTEMBER 30, 1999.

REVENUE. Revenues for the first six months of fiscal 2001 were \$529.3 million, compared to \$440.3 million for the same period in fiscal 2000. Revenues from our domestic operations increased \$86.0 million (20.3%) to \$509.3 million in the first six months of fiscal 2001 when compared to \$423.3 million for the same period in fiscal 2000. This increase resulted from a 23% increase in tonnage shipped, partially offset by weaker prices, and was attributable to strong demand of our core products throughout key industries we serve. Revenues from our Canadian operations increased \$3.0 million (17.6%) to \$20.0 million in the first six months of fiscal 2001 when compared to \$17.0 million for the same period in fiscal 2000 as the result of strong local economic conditions.

GROSS PROFIT. Gross profit for first six months of fiscal 2001 was \$147.7 million, compared to \$128.7 million for the same period in fiscal 2000. Consolidated gross margin for the first six months of fiscal 2001 decreased to 27.9% when compared to 29.2% for the same period in fiscal 2000. Gross profit for the fiscal 2001 period included a LIFO credit of \$0.2 million compared to a corresponding LIFO credit of \$2.5 million in the fiscal 2000 period. Gross profit from our Canadian operations was \$4.8 million and gross margin was 24.0% during the first six months of fiscal 2001, compared to \$3.9 million and 22.9%, respectively, for the same period in fiscal 2000. Exclusive of Canadian

operations and LIFO adjustments, our gross margin was 28.0% for the first six months of fiscal 2001 compared to 28.9% for the same period in fiscal 2000. EXPENSES. Total operating expenses for the first six months of fiscal 2001 were \$111.8 million (21.1% of revenues), compared to \$100.2 million (22.8% of revenues) for the same period in fiscal 2000. The higher operating expenses generally reflect variable expenses incurred to support increased tonnage shipped and costs associated with new or expanded facilities.

Warehouse and delivery expenses for the first six months of fiscal 2001 were \$67.3 million (12.7% of revenues), compared to \$59.2 million (13.4% of revenues) for the same period in fiscal 2000. The fiscal 2001 period included higher compensation, lease, fuel, maintenance, tooling and supplies expenses resulting from increased tonnage shipped and new or expanded facilities. As of September 28, 2000, 1,234 employees were involved in warehouse and delivery activities, compared to 1,113 as of September 30, 1999.

Selling expenses for the first six months of fiscal 2001 were \$19.1 million (3.6% of revenues), compared to \$16.3 million (3.7% of revenues) for the same period in fiscal 2000. The fiscal 2001 period included higher accruals for incentive compensation based on sales and gross profit levels. General and administrative expenses for the first six months of fiscal 2001 were \$25.3 million (4.8% of revenues), compared to \$24.7 million (5.6% of revenues) for the same period in fiscal 2000. The fiscal 2001 period included higher accruals for management incentives, lower purchase discounts and higher income recognized in connection with life insurance policies.

NET INTEREST EXPENSE. Net interest expense was \$22.0 million for the first six months of fiscal 2001 compared to \$20.1 million in the same period in fiscal 2000. Such amounts include interest and amortization of debt issue costs related to our revolving credit facility ("Revolving Credit Facility"), our 9-1/2% senior notes ("Senior Notes"), our variable rate term loan ("Term Loan") and interest on borrowings against the cash surrender value of certain life insurance policies we maintain.

#### PART I - FINANCIAL INFORMATION (CONTINUED)

EARLE M. JORGENSEN COMPANY

#### MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS (CONTINUED)

RESULTS OF OPERATIONS: SIX MONTHS ENDED SEPTEMBER 28, 2000 COMPARED TO SIX MONTHS ENDED SEPTEMBER 30, 1999. (CONTINUED)

Interest expense and amortization of debt issue costs related to the our outstanding indebtedness (excluding those borrowings against the cash surrender value of certain life insurance policies) totaled \$15.1 million for the first six months of fiscal 2001 compared to \$14.2 million for the same

period in fiscal 2000. The average outstanding indebtedness during the fiscal 2001 period was \$317.5 million, compared to \$311.7 million for the same period in fiscal 2000. The weighted-average interest rate on such indebtedness was 9.18% during the first six months of fiscal 2001 versus 8.13% during the same period in fiscal 2000. During the six months ended September 28, 2000 and September 30, 1999, borrowings under the Revolving Credit Facility averaged \$103.3 million and \$95.9 million and the average interest rate on such borrowings was 8.52% and 7.04%, respectively. Interest expense on borrowings against the cash surrender value of certain life insurance policies maintained was \$6.9 million for the first six months of fiscal 2001 period compared to \$6.0 million for the same period in fiscal 2000.

The interest **rates** on our 9 1/2% Senior **Notes** and on the borrowings under the life insurance policies are fixed at 9.50% and 11.76%, respectively. The interest **rates** on our Revolving Credit Facility and Term Loan are **floating** (8.72% and 10.06%, respectively, as of September 28, 2000).

Pursuant to our interest rate swap agreement with Bankers Trust Company covering a notional amount of \$95.0 million under the Term Loan, we received \$0.3 million during the first six months of fiscal 2001 versus paying \$0.3 million in interest during the same period in fiscal 2000.

INCOME TAXES. Income tax expense for the first six months of fiscal 2001 and 2000 included provisions for state and foreign income taxes. Federal tax provisions for the first six months of fiscal 2001 and 2000 were offset by recognition of tax benefits associated with our loss carryforwards.

PART I - FINANCIAL INFORMATION (CONTINUED)  
EARLE M. JORGENSEN COMPANY

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL

CONDITION AND RESULTS OF OPERATIONS (CONTINUED)

RESULTS OF OPERATIONS: THREE MONTHS ENDED SEPTEMBER 28, 2000 COMPARED TO THREE

MONTHS ENDED SEPTEMBER 30, 1999.

REVENUE. Revenues for the second quarter of fiscal 2001 were \$260.8 million, compared to \$219.4 million for the same period in fiscal 2000. Revenues from our domestic operations increased \$40.7 million (19.3%) to \$251.8 million in the second quarter of fiscal 2001 when compared to \$211.1 million for the same period in fiscal 2000. This increase resulted from a 21% increase in tonnage shipped, partially offset by weaker prices, and was attributable to strong demand of our core products throughout key industries we serve. Revenue from our Canadian operations increased \$0.8 million to \$9.1 million (9.6%) in

the  
second quarter of fiscal 2001 when compared to \$8.3 million in the same  
period  
in fiscal 2000 as the result of strong local economic conditions.

GROSS PROFIT. Gross profit for the second quarter of fiscal 2001 was \$73.2 million, compared to \$64.7 million for the same period in fiscal 2000, while consolidated gross margins were 28.1% and 29.5%, respectively. Gross profit for the fiscal 2001 period included a LIFO credit of \$0.2 million compared to a corresponding LIFO credit of \$1.5 million in the fiscal 2000 period.

Gross profit from our Canadian operations was \$2.2 million and gross margin was 24.2% during the second quarter of fiscal 2001, compared to \$1.9 million and 22.9%, respectively, for the same period in fiscal 2000. Exclusive of our Canadian operations and LIFO adjustments, gross margin decreased to 28.1% for the second quarter of fiscal 2001 when compared to 29.0% for the same period in fiscal 2000 due to changes in product mix and weaker prices.

EXPENSES. Total operating expenses for the second quarter of fiscal 2001 were \$55.6 million (21.3% of revenues), compared to \$50.2 million (22.9% of revenues) for the same period in fiscal 2000. The higher operating expenses generally reflect variable expenses incurred to support increased tonnage shipped and costs associated with new or expanded facilities.

Warehouse and delivery expenses for the second quarter of fiscal 2001 were \$33.3 million (12.8% of revenues), compared to \$29.8 million (13.6% of revenues) for the same period in fiscal 2000. The fiscal 2001 period included higher compensation, lease, fuel, tooling, maintenance and supplies expenses resulting from increased tonnage shipped and new or expanded facilities.

Selling expenses for the second quarter of fiscal 2001 were \$9.4 million (3.6% of revenues), compared to \$8.1 million (3.7% of revenues) for the same period in fiscal 2000. The fiscal 2001 period included higher accruals for incentive compensation based on sales and gross profit levels.

General and administrative expenses were \$12.9 million (4.9% of revenues) during the second quarter of 2001 compared to \$12.3 million (5.6% of revenues) for the same period in fiscal 2000. The fiscal 2001 period included higher accruals for management incentives, lower purchase discounts and higher income recognized in connection with life insurance policies. In addition, the second quarter of fiscal 2000 included losses on sale of assets that did not reoccur during the same period in fiscal 2001.

NET INTEREST EXPENSE. Net interest expense was \$11.2 million for the second quarter of fiscal 2001 compared to \$10.4 million in the same period in fiscal 2000. Such amounts include interest and amortization of debt issue costs related to our Revolving Credit Facility, our Senior Notes, our Term Loan

and  
interest on borrowings against the cash surrender value of certain life insurance policies we maintain.

Interest expense and amortization of debt issue costs related to the our outstanding indebtedness (excluding those borrowings against the cash surrender value of certain life insurance policies) totaled \$7.8 million for the second quarter of fiscal 2001 compared to \$7.4 million for the same period in fiscal 2000. The average outstanding indebtedness during the second quarter of fiscal 2001 was \$324.2 million, compared to \$314.9 million for the same period in fiscal 2000. The weighted average interest rate on such indebtedness was 9.32% during the second quarter of fiscal 2001 versus 8.54% during the same period in fiscal 2000. During the three months ended September 28, 2000 and September 30, 1999, borrowings under the Revolving Credit Facility averaged \$110.5 million and \$99.4 million and the average interest rate on such borrowings was 8.69% and 7.18%, respectively.

#### PART I - FINANCIAL INFORMATION (CONTINUED)

EARLE M. JORGENSEN COMPANY

#### MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

RESULTS OF OPERATIONS: THREE MONTHS ENDED SEPTEMBER 28, 2000 COMPARED TO  
THREE  
MONTHS ENDED SEPTEMBER 30, 1999. (CONTINUED)

Interest expense on borrowings against the cash surrender value of certain life insurance policies maintained was \$3.4 million during the second quarter of fiscal 2001 period compared to \$3.0 million for the same period in fiscal 2000.

Pursuant to our interest rate swap agreement, we received \$0.2 million from Bankers Trust Company during the three months ended September 28, 2000, compared to paying Bankers Trust Company \$0.1 million for the same period in fiscal 2000.

INCOME TAXES. Income tax expense for the second quarter of fiscal 2001 and 2000 included provisions for state and foreign income taxes. Federal tax provisions for the second quarter of fiscal 2001 and 2000 were offset by recognition of tax benefits associated with our loss carryforwards.

#### LIQUIDITY AND CAPITAL RESOURCES

Working capital increased to \$223.5 million at September 28, 2000 when compared to \$165.1 million at March 31, 2000 primarily as the result of higher inventories and accounts receivable. Our primary cash flows during the first six months of fiscal 2001 consisted of funds provided by borrowings under our Revolving Credit Facility totalling \$54.3 million, while the primary uses of cash consisted of: (i) cash used in operations, \$52.2 million; and (ii)



capital expenditures, \$5.8 million.

Cash used in operating activities was \$52.2 million (9.9% of revenues) during the first six months of fiscal 2001 compared to \$6.6 million (1.5% of revenues) for the same period of fiscal 2000. The increase primarily resulted from maintaining higher levels of inventory in respect to higher revenues.

For fiscal 2001, we have planned approximately \$14.0 million of capital expenditures to be financed from internally generated funds. Approximately \$11.3 million is for routine replacement of machinery and equipment and facility improvements and expansions, and \$2.7 million is for further additions to our management information systems. During the first six months of fiscal 2001, we spent \$5.8 million for planned capital expenditures.

Our cash requirements for **debt** service and related **obligations** through the end of fiscal 2001 are expected to consist primarily of interest payments under the Revolving Credit Facility, interest and principal payments on the Term Loan, interest payments on the 9 1/2% Senior Notes, dividend payments to Holding in connection with the required repurchase of its capital stock from departing stockholders pursuant to Holding's Stockholders' Agreement and the (Edgar Online via COMTEX)

Company Name: UNITED STATES EXPLORATION INC  
(SYMBOL:UXP)

#### MANAGEMENT'S DISCUSSION AND ANALYSIS OR PLAN OF OPERATION Introduction

The Company's financial condition and results of operations have improved dramatically as a result of the favorable settlement of its obligations to its former lender and increased oil and gas prices. At September 30, 1999, the Company had a stockholders deficit of \$2,565,886 and no borrowing ability. At September 30, 2000, the Company had stockholders equity of \$15,367,726 and \$2,000,000 available under its credit facility. In the nine months ended September 30, 1999, the Company sold its Colorado oil for an average price of \$15.42 per barrel and its Colorado gas for an average price of \$1.99 per mcf. In the nine months ended September 30, 2000, the comparable numbers were \$27.67 for oil and \$3.14 for gas.

These improvements have allowed the Company to proceed with the development of its oil and gas properties in Colorado and Kansas. Cash flow from operations and available borrowings under a new credit agreement are expected to be adequate to allow the Company to complete the development of its properties. In addition, the Company has entered into a drilling agreement with an independent oil and gas company that will result in the drilling of wells on its Colorado properties that the Company probably would not drill itself, further increasing reserves. The Company's cash flow and the quantity and value of its oil and gas reserves

are directly and immediately affected by changing oil and gas prices. Oil and gas prices are currently high. However, at year end 1998, the Company was required to write down its oil and gas properties by \$15,206,978, wiping out its shareholders' equity, primarily because reduced oil and gas prices resulted in lower estimated economically recoverable reserves. Generally accepted accounting principles did not allow us to write the properties back up when oil and gas prices recovered. This write-down and its effects on our stockholders equity and earnings are illustrative of the effect that changing market conditions can have on the financial condition and results of operations of an oil and gas company, even though there has been no change in its underlying assets and operations. As a result of the losses experienced by the Company in recent periods and defaults under our former loan agreement (which have since been settled as described below), our auditors included a "going concern" qualification in their opinions on our 1999 and 1998 financial statements.

#### Liquidity and Capital Resources

##### Bank Credit Facility

On August 25, 2000, we entered into a credit agreement with Bank of Oklahoma, N.A. The revolving credit agreement is available through August 1, 2003 in the original amount of \$6,000,000, which may be increased up to \$10,000,000 based on subsequent borrowing base determinations by the lender. The loan bears interest at rates varying from lender prime to 0.75% below lender prime, depending upon the outstanding principal balance of the loan, and is secured by all of the Company's oil and gas properties. Interest is payable monthly and principal is payable at the end of the credit term. The interest rate for August and September was 8.75% per annum. At September 30, 2000, the Company has borrowed \$4,000,000 to repay the interim debt financing provided by Benson Mineral Group, Inc. See Note E to Financial Statements. The borrowing base is to be redetermined as of December 1, 2000 and each April 1 and October 1 thereafter. Financial covenants included in the credit agreement require the Company to (i) maintain a tangible net worth of \$8,000,000, (ii) maintain a debt coverage ratio (as defined) of 1.25 to 1 and (iii) maintain an EBITDA to consolidated interest ratio (as defined) of 2.5 to 1.

##### Capital Expenditures

Capital expenditures were \$1,543,077 for the third quarter of 2000.

Under the Exploration Agreement with UPR, we have an obligation to drill 20 commitment wells prior to December 1, 2000. As of October 20, 2000, 17 of these wells had been drilled. If the remaining wells are not drilled by the deadline, the Exploration Agreement is terminated and we will be obligated

to  
pay liquidated damages of \$125,000 for each well not drilled.

Our Colorado development plan for the last half of this year includes 16 recompletions in different formations in existing wellbores and the drilling of one new well. At September 30, 2000, nine of the recompletions had been accomplished. We have also recently agreed to participate with other oil and gas operators in the drilling of seven new wells plus six recompletions in existing wellbores.

Our Kansas development plan for the remainder of the year includes obtaining new leases, drilling or recompletion activity and continued efforts to negotiate agreements to purchase gas from others.

We previously announced a second drilling program with a third party whereby the third party could drill up to 62 wells at no cost to us and we would own approximately 20% of each well drilled. These are wells which we had no plans to drill ourselves. Of the 62 wells, 25 could be counted to satisfy the remaining three wells in the 20-well commitment to be drilled prior to December 1, 2000 under the Exploration Agreement with UPR or could be credited against the 20 commitment wells in our next yearly option period which begins December 1, 2000 if we can and do elect to exercise the option. There can be no assurance that the third party will drill wells that count against our commitment under the Exploration Agreement or, if they do, that such wells will be drilled within the time periods established by the Exploration Agreement. At October 20, 2000, five producing wells have been drilled under this second program, none of which qualify under the UPR Exploration Agreement. In the same announcement we reported that a prior 20 well drilling program with the same third party had 18 wells completed as producers with two wells yet to be drilled and that the 18 wells increased the reserves attributable to our interest by 1.3 Bcfe.

Cash Balances and Cash Flow

As of October 18, 2000 the Company had cash and cash equivalents of approximately \$500,000. Higher commodity prices and the continuing implementation of cost reduction measures allow us to project positive cash flow before capital spending for the remainder of the year. Our projected capital spending will require additional borrowings from Bank of Oklahoma under our credit facility. However, there can be no assurance that prices will remain at current levels and that cash flow will remain positive.

#### Property Sales

The sale of the Company's Texas land held for resale at an amount of \$150,000 less customary closing costs is expected to close in the fourth quarter of 2000.

#### Series C Preferred Stock

At September 30, 2000, unpaid dividends on the Company's Series C Preferred

Stock totaled \$478,620. Under the terms of the Series C Convertible Preferred

Stock, if dividends have not been paid in an amount equal to at least six quarterly dividends, the number of directors on the Company's Board is automatically increased by two and the holders of the Series C Convertible Preferred Stock are entitled to elect the two new directors. Upon payment of

the dividends arrearage, the size of the Board is reduced by two and the terms

of directors elected by the holders of the Series C Preferred Stock automatically terminate. On December 31, 1999, the dividend arrearages on the

Series C Convertible Preferred Stock totaled six quarters and this right of the holders to elect two directors arose. At the August 8, 2000 annual stockholders meeting, the Series C Preferred stockholders elected Joseph A. Hutchinson and Charles D. Unruh to fill these two vacancies.

No preferred stock cash dividends may be paid under the terms of the Bank of Oklahoma credit agreement. In the event preferred stock dividends have not been paid on the Series C Preferred Stock for three successive years, the Company, to the extent legally possible, is required to pay all dividends in

arrears in common stock of the Company, subject to prior permission of the holders of the Series C Preferred Stock, which consent may not be withheld for

more than 180 consecutive days. Dividends will be in arrears on the Series C

Preferred Stock for three successive years on June 30, 2001.

Under the terms of the Series C Preferred Stock, certain issuances of common

stock or options to purchase common stock require a recalculation of the number of common shares to be issued upon conversion of Series C Preferred. The Company has made these recalculations because of common stock issued and

options granted in May 2000. Each Series C Preferred share is now convertible

into 2.23048 shares of common stock instead of the original conversion number

of two shares of common stock for each share of Series C Preferred.

## Results of Operations

### Quarter Ended September 30, 2000

The Company realized net income applicable to common shareholders of \$465,227

(\$.02 per common share) for the third quarter of 2000 compared to a loss applicable to common shareholders of \$516,226 (\$.03 per common share) for the third quarter of 1999.

Sales of purchased gas less the related gas acquisition costs and gathering and transmission costs produced an operating profit from the resale of purchased gas of \$46,379 for the third quarter of 2000 compared to an operating profit of \$9,268 for the third quarter of 1999. No depreciation or amortization expense is included in these calculations.

Net oil and gas production (after royalties) and weighted average sales prices

for the Company's products for the three months ended September 30, 2000 and September 30, 1999 are shown in the table below:

Net Oil and Gas Production and Sales Prices

	Three months		
ended September 30			
-----			
Three months			
	2000		
1999 ended			
	-----		
----- June 30,			
	Kansas	Colorado	Total
Kansas Colorado Total 2000			
	-----	-----	-----
-----			
Production			
Oil - mbbbl	.16	27.40	27.56
(.40) 22.71 22.31 31.40			
Natural Gas - mmcf	18.22	398.18	416.40
23.00 535.66 558.66 491.78			
Total - mmcf	19.18	562.58	581.76
20.60 671.92 692.52 680.18			
Weighted Average Prices			
Oil - \$/bbl	21.63	30.02	29.97
15.98 19.39 19.45 26.85			
Natural Gas - \$/mcf	2.51	3.78	3.72
1.61 2.42 2.38 3.04			

The increase in production costs - oil and gas from \$647,935 for the third quarter of 1999 to \$705,297 for the third quarter of 2000 is attributable to an increase of \$59,246 in production taxes based upon the value of the Company's oil and gas sold. General and administrative expenses of \$490,627 for the third quarter of 1999 are comparable to the \$485,202 for the third quarter of 2000.

Interest expense for the third quarter of 2000 in the amount of \$90, 226 represents 9% per annum on the \$4,000,000 interim financing provided by

Benson

Mineral Group, Inc. for the period July 1, 2000 through August 24, 2000 (\$54,254) plus 8.75% per annum on \$4,000,000 of borrowings under the Bank of Oklahoma credit facility for the period August 25, 2000 through September 30,

2000 (\$35,972). Interest expense for the third quarter of 1999 was based upon the terms of the ING credit facility and totaled \$607,219.

Nine Months Ended September 30, 2000

The Company realized net income applicable to common shareholders of \$16,018,749 (\$.93 per common share) for the first nine months of 2000 compared to a net loss applicable to common shareholders of \$2,643,666 (\$.17 per common share) for the first nine months of 1999. Included in net income for the nine months ended September 30, 2000 is an extraordinary gain resulting from the settlement of the ING credit facility in an amount of \$16,292,093 (\$.95 per common share). Before the extraordinary gain related to the loan settlement, the Company had a net loss of \$113,804 for the nine months ended September 30, 2000, compared to a net loss of \$2,484,126 for the same period in 1999. The 2000 loss reflects interest expense of \$1,574,837, of which \$1,441,331 (approximately \$.07 per common share) consists of **interest** accrued at the **default** rate on the Company's former loan prior to the settlement in May 2000. Although that accrued interest was extinguished in the settlement, it is still required to be recognized as interest expense and therefore reduces net income for 2000.

Sales of purchased gas less the related gas acquisition costs and transmission costs produced an operating profit from the resale of purchased gas of \$108,387 for the first nine months of 2000 compared to an operating profit of \$28,080 for the first nine months of 1999. No depreciation or amortization expense is included in these calculations.

Net oil and gas production (after royalties) and weighted average sales prices for the Company's products for the nine months ended September 30, 2000 and September 30, 1999 are shown in the table below:

(Edgar Online via COMTEX)

Company Name: SOUTHWEST ROYALTIES INSTITUTIONAL INCOME FUND IX-B LP

Management's Discussion and Analysis of Financial Condition and Results of Operations General Southwest Royalties Institutional Income Fund IX-B, L.P. was organized as a Delaware limited partnership on March 9, 1989. The offering of such limited partnership interests began on May 11, 1989, minimum capital requirements were met on September 26, 1989, and the offering concluded on March 31, 1990, with total limited partner contributions of \$4,891,000.

The Partnership was formed to acquire royalty and net profits interests in producing oil and gas properties, to produce and market crude oil and natural gas produced from such properties, and to distribute the net proceeds from operations to the limited and general partners. Net revenues from producing oil and gas properties are not reinvested in other revenue producing assets except to the extent that production facilities and wells are improved or reworked or where methods are employed to improve or enable more efficient recovery of oil and gas reserves.

Increases or decreases in Partnership revenues and, therefore, distributions to partners will depend primarily on changes in the prices received for production, changes in volumes of production sold, lease operating expenses, enhanced recovery projects, offset drilling activities pursuant to farm-out arrangements, sales of properties, and the depletion of wells. Since wells deplete over time, production can generally be expected to decline from year to year. Well operating costs and general and administrative costs usually decrease with production declines; however, these costs may not decrease proportionately. Net income available for distribution to the partners is therefore expected to fluctuate in later years based on these factors.

Based on current conditions, management anticipates the possibility of performing workovers during the next twelve months. The Partnership could possibly experience a normal decline of 8% to 10% per year.

**Oil and Gas Properties** Oil and gas properties are accounted for at cost under the full-cost method. Under this method, all productive and nonproductive costs incurred in connection with the acquisition, exploration and development of oil and gas reserves are capitalized. Gain or loss on the sale of oil and gas properties is not recognized unless significant oil and gas reserves are involved.

The Partnership's policy for depreciation, depletion and amortization of oil and gas properties is computed under the units of revenue method. Under the units of revenue method, depreciation, depletion and amortization is computed on the basis of current gross revenues from production in relation to future gross revenues, based on current prices, from estimated production of proved oil and gas reserves. Should the net capitalized costs exceed the estimated present value of oil and gas reserves, discounted at 10%, such excess costs would be charged to current expense. As of September 30, 2000, the net capitalized costs did not exceed the estimated present value of oil and gas reserves.

#### Results of Operations

##### A. General Comparison of the Quarters Ended September 30, 2000 and 1999

The following table provides certain information regarding performance factors for the quarters ended September 30, 2000 and 1999:

Percentage	Three Months Ended		
	September 30,		
Increase	2000	1999	
(Decrease)	----	----	
-----			
Average price per barrel of oil	\$ 30.78	20.86	48%
Average price per mcf of gas	\$ 4.27	2.20	94%
Oil production in barrels	5,000	5,120	(2%)
Gas production in mcf	34,200	35,090	(3%)
Income from net profits interests	\$ 175,942	98,053	79%
Partnership distributions	\$ 175,000	50,000	250%
Limited partner distributions	\$ 157,500	45,000	250%
Per unit distribution to limited partners	\$ 16.10	4.60	250%
Number of limited partner units	9,782	9,782	

#### Revenues

The Partnership's income from net profits interests increased to \$175, 942 from \$98,053 for the quarters ended September 30, 2000 and 1999, respectively, an increase of 79%. The principal factors affecting the comparison of the quarters ended September 30, 2000 and 1999 are as follows:

1. The average price for a barrel of oil received by the Partnership increased during the quarter ended September 30, 1999 by 48%, or \$9.92 per barrel, resulting in an increase of approximately \$50,800 in income from net profits interests. Oil sales represented 51% of total oil and gas sales during the quarter ended September 30, 2000 as compared to 58% during the quarter ended September 30, 1999.

The average price for an mcf of gas received by the Partnership increased during the same period by 94%, or \$2.07 per mcf, resulting in an increase of approximately \$72,600 in income from net profits interests.

The total increase in income from net profits interests due to the change in prices received from oil and gas production is approximately \$123,400. The market price for oil and gas has been extremely volatile over the past decade, and management expects a certain amount of volatility to continue in the foreseeable future.

2. Oil production decreased approximately 120 bbl or 2% during the same period, resulting in a decrease of approximately \$3,700 in income from net profits interest.



Gas production decreased approximately 890 mcf or 3% during the same period, resulting in a decrease of approximately \$3,800 in income from net profits interests.

The total decrease in income from net profits interests due to the change in production is approximately \$7,500.

3. Lease operating costs and production taxes were 22% higher, or approximately \$18,500 more during the quarter ended September 30, 2000 as compared to the quarter ended September 30, 1999. The increase in lease operating costs and production taxes is primarily a result of the higher oil and gas prices received by the Partnership. Higher prices have made it possible for the Partnership to perform needed major repairs and maintenance. Since production taxes are based on gross revenues, the increase in oil and gas prices have directly increased production taxes.

Costs and Expenses

Total costs and expenses increased to \$23,433 from \$21,557 for the quarters ended September 30, 2000 and 1999, respectively, an increase of 9%. The increase is the result of higher general and administrative expense and depletion expense.

1. General and administrative costs consists of independent accounting and engineering fees, computer services, postage, and Managing General Partner personnel costs. General and administrative costs increased 5% or approximately \$900 during the quarter ended September 30, 2000 as compared to the quarter ended September 30, 1999.

2. Depletion expense increased to \$5,000 for the quarter ended September 30, 2000 from \$4,000 for the same period in 1999. This represents an increase of 25%. Depletion is calculated using the units of revenue method of amortization based on a percentage of current period gross revenues to total future gross oil and gas revenues, as estimated by the Partnership's independent petroleum consultants. Contributing factors to the increase in depletion expense between the comparative periods were the increase in the price of oil and gas used to determine the Partnership's reserves. The increase in depletion expense is due to an accrual adjustment, which was made during the quarter ended September 30, 1999 to adjust for the over accrual of depletion in the first two quarters of 1999. The rapid rise in prices during the first three quarters of 1999 from \$14/bbl to \$23/bbl and from \$1.71/mcf to \$2.38/mcf caused an adjustment to be necessary during the third quarter of 1999.

B. General Comparison of the Nine Month Periods Ended September 30, 2000 and 1999

The following table provides certain information regarding performance factors for the nine month periods ended September 30, 2000 and 1999:

	Nine Months Ended		
Percentage	September 30,		
Increase	2000	1999	
(Decrease)	----	----	
-----			
Average price per barrel of oil	\$ 28.41	15.17	87%
Average price per mcf of gas	\$ 3.30	1.77	86%
Oil production in barrels	15,100	16,720	(10%)
Gas production in mcf	98,700	101,550	(3%)
Income from net profits interests	\$ 481,301	188,361	156%
Partnership distributions	\$ 406,207	124,382	227%
Limited partner distributions	\$ 376,207	116,382	223%
Per unit distribution to limited partners	\$ 38.46	11.90	223%
Number of limited partner units	9,782	9,782	

#### Revenues

The Partnership's income from net profits interests increased to \$481, 301 from \$188,361 for the nine months ended September 30, 2000 and 1999, respectively, an increase of 156%. The principal factors affecting the comparison of the nine months ended September 30, 2000 and 1999 are as follows:

1. The average price for a barrel of oil received by the Partnership increased during the nine months ended September 30, 2000 as compared to the nine months ended September 30, 1999 by 87%, or \$13.24 per barrel, resulting in an increase of approximately \$221,400 in income from net profits interests. Oil sales represented 57% of total oil and gas sales during the quarter ended September 30, 2000 as compared to 59% during the quarter ended September 30, 1999.

The average price for an mcf of gas received by the Partnership increased during the same period by 86%, or \$1.53 per mcf, resulting in an increase of approximately \$155,400 in income from net profits interests. The total increase in income from net profits interests due to the change in prices received from oil and gas production is approximately \$376,800. The market price for oil and gas has been extremely volatile over the past decade, and management expects a certain amount of volatility to continue in the foreseeable future.

2. Oil production decreased approximately 1,620 barrels or 10% during the nine months ended September 30, 2000 as compared to the nine months ended September 30, 1999, resulting in a decrease of approximately \$46,000 in income from net profits interests.

Gas production decreased approximately 2,850 mcf or 3% during the same period, resulting in a decrease of approximately \$9,400 in income from net profits interests.

The total decrease in income from net profits interests due to the change in production is approximately \$55,400.

3. Lease operating costs and production taxes were 12% higher, or approximately \$28,500 more during the nine months ended September 30, 2000 as compared to the nine months ended September 30, 1999.

#### Costs and Expenses

Total costs and expenses decreased to \$70,590 from \$80,334 for the nine months ended September 30, 2000 and 1999, respectively, a decrease of 12%. The decrease is the result of lower general and administrative expense and depletion expense.

1. General and administrative costs consists of independent accounting and engineering fees, computer services, postage, and Managing General Partner personnel costs. General and administrative costs decreased 1% or approximately \$700 during the nine months ended September 30, 2000 as compared to the nine months ended September 30, 1999.

2. Depletion expense decreased to \$15,000 for the nine months ended September 30, 2000 from \$24,000 for the same period in 1999. This represents a decrease of 38%. Depletion is calculated using the units of revenue method of amortization based on a percentage of current period gross revenues to total future gross oil and gas revenues, as estimated by the Partnership's independent petroleum consultants. Contributing factors to the decrease in depletion expense between the comparative periods were the increase in the price of oil used to determine the Partnership's reserves and the increase in gross oil and gas revenues. The decrease in price has also dropped the basis of the reserves because of the negative economics on some wells.

**Liquidity and Capital Resources** The primary source of cash is from operations, the receipt of income from interests in oil and gas properties. The Partnership knows of no material change, nor does it anticipate any such change.

Cash flows provided by operating activities were approximately \$366, 400 in the nine months ended September 30, 2000 as compared to approximately \$89,800 in the nine months ended September 30, 1999. The primary source of the 2000 cash flow from operating activities was profitable operations.

There were no cash flows provided by investing activities for the nine months ended September 30, 2000 as compared to approximately \$53, 300 in the nine (Edgar Online via COMTEX)

Company Name: UNITED STATES LIME & MINERALS INC  
(SYMBOL:USLM)

## MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

### LIQUIDITY AND CAPITAL RESOURCES

Net cash provided by operating activities was \$6,056,000 for the nine months ended September 30, 2000, as compared to \$346,000 for the nine months ended September 30, 1999. Cash from operating activities increased, in spite of the decrease in net income, as a result of a temporary increase in the volume of unpaid invoices outstanding at September 30, 2000, due in part to the modernization and expansion project at Arkansas Lime Company, and the decrease of finished goods inventories, as well as favorable timing in the collection of accounts receivable.

The Company invested \$25,000,000 in capital expenditures in the first nine months of 2000, of which \$18,950,000 related to Phase I of the Arkansas modernization and expansion project, and approximately \$1,600, 000 related to the largely-completed second production line for pulverized limestone at the Texas facility, designed to provide duplicate production facilities to enable the Company to vigorously pursue new pulverized limestone customers who require an assured source of supply. This compared to capital expenditures of \$8,166,000 in the same period last year.

The Arkansas modernization and expansion project was planned to be completed in two phases, and Phase I is now largely completed. The redeveloped quarry plant was commissioned on September 27, 2000, and the rotary lime kiln with preheater began operation on October 22, 2000. The increased lime product storage and loading capacity has also been completed. Relaying of the Company's internal railroad is in progress, with completion anticipated at the end of November. The out-of-state terminal is anticipated to be operational in the first quarter 2001. Phase II of the Arkansas project would further expand the plant capacity through the installation of a second kiln with additional storage capacity.

The Arkansas improvements should allow the Company to better serve its customers by improving both quality and service while increasing the production capacity of quicklime and hydrated lime. With the improvements, the Company expects to be in a better position to compete for customers who currently cannot use the Company's lime in their processes due to insufficient production capacity at the plant or quality constraints. The rotary kiln

will

have lower operating costs and a greater capacity than the six shaft kilns that were permanently taken out of service in October. In addition to increasing capacity, this kiln should also be able to consistently produce high-quality lime for use by certain manufacturing customers who currently do

not buy lime from the Arkansas facility. The storage, screening, and load-out

facilities will also substantially reduce the amount of time required for the

loading of bulk quicklime trucks and railcars. The planned modernization and

expansion project will increase both production and shipping capacity, will lower operating costs, and will allow for a more efficient utilization of the

work force.

The Company now estimates that total capital expenditures for Phase I of the

Arkansas project will be approximately \$30,000,000, approximately \$1,300,000

over the estimate stated in the Company's second quarter 2000 Form 10-Q of \$28,700,000. This total includes an increased scope of work, the benefit of which will be to reduce future operating costs, and also includes approximately \$1,000,000 of costs incurred for certain facilities that were pre-built for Phase II of the project, as it was cost-effective to construct

those facilities concurrently with Phase I. In addition, the increased costs

of Phase I reflect additional construction costs from delayed completion of certain facilities, as well as the Company's reduced ability to attract competitive bids for the later stages of the project due to the continued high

level of construction activity in the area.

Phase II is estimated to cost approximately \$12,000,000. However, the Company

has determined to delay the start of Phase II, and currently plans to commence

construction in mid-year 2001, subject to market demand, ability to secure competitive bids, and the availability of financing.

The Company has intended to finance Phase II of the Arkansas project through a

combination of internally generated funds, additional bank borrowings, and/or

other sources of capital. Given the lower than expected operating income generated by the Company in the second and third quarters of this year, as well as the increased costs of the Arkansas project, the Company's Board of Directors has determined to seek to raise additional equity capital through a

\$10,000,000 common stock rights offering to existing shareholders, and to seek

an additional seven-year, \$7,000,000 term loan facility. In the Board's view,

the additional financings will enable the Company to proceed with Phase II of

the Arkansas project, and provide the Company with ongoing working capital. The Board views Phase II of the Arkansas project as necessary to achieving maximum utilization of the infrastructure completed there to date, thus maximizing the Company's rate of return on that investment, by approximately

doubling the capacity of the Arkansas plant for an incremental investment

of  
approximately \$12,000, 000.  
The Company has, therefore, today filed a registration statement for the proposed rights offering with the Securities and Exchange Commission (the "SEC"). The Company's majority shareholder, Inberdon Enterprises Ltd. ("Inberdon"), has expressed its willingness to subscribe for its proportional share of the \$10,000,000 (approximately 51%), and to subscribe for the shares not subscribed for by other shareholders. The Company presently anticipates that the rights offering will commence in the next several weeks, subject to SEC review, market conditions, and setting of an offering price that is acceptable to Inberdon. The Company's new term loan is subject to the condition that the Company raise at least \$5,000,000 in new equity, as well as other usual and customary closing conditions.

The Company is not contractually committed to any planned capital expenditures until actual orders are placed for equipment. As of September 30, 2000, the Company had liability for open equipment and construction orders in the amount of approximately \$4,000,000. All future billings related to the Arkansas modernization and expansion project will be recorded as work is performed and billed to the Company.

As of September 30, 2000, the Company had \$48,333,333 in total debt outstanding. As of October 31, 2000, the Company had not drawn on its \$4,000,000 revolving credit facility, but anticipates drawing down the full amount by January 31, 2001 because of the impact of increased construction costs, start-up costs, and lower than expected operating income.

In the short term, the Company intends to meet its obligations relating to operating expense, interest expense, accounts payable, current installments of long-term debt, and committed capital expenditures at its Arkansas and Texas plants with funds generated by operations, by drawing down on the revolving credit facility, and with the proceeds of the proposed rights offering and term loan. If there is any significant shortfall in operating income or delay in receiving the expected proceeds from the rights offering, it may be difficult for the Company to meet its short-term obligations or otherwise achieve its business objectives.

#### RESULTS OF OPERATIONS

Revenues were \$9,344,000 in the third quarter of 2000, an increase of \$76,000, or 0.8%, from the revenues of \$9,268,000 in the third quarter of 1999. This resulted from a 1.2% decrease in sales volume and a 2.0% increase in prices. The high cost of natural gas fuel in Arkansas during the third quarter lead to increased costs of production and a decision to reduce lime production and sales. Sales revenues at Arkansas were \$461,000 lower than in the same period in the prior year. The demand for

lime remains strong in both the Arkansas and Texas markets, although the demand for pulverized limestone has weakened. Revenues for the nine months

ended September 30, 2000 were \$25,480,000, an increase of \$1,668,000, or 7.0%, from the \$23,812,000 reported for the nine months ended September 30, 1999. The increase resulted from a 4.8% increase in sales volume and a 2.2% increase in prices.

The Company's gross profit was \$2,005,000 for the third quarter of 2000, compared to \$2,896,000 for the third quarter of 1999, a 30.8% decrease. Gross profit margin as a percentage of revenues for the third quarter of 2000 decreased to 21.5%, from 31.2% in the same period in 1999. The decreases in gross profit and gross profit margins were affected by increasing fuel costs, which added approximately \$600,000 to operating costs, and by the delay in the start-up of Phase I operations at Arkansas Lime. Lower sales volumes and inefficient production from the old plant with its higher natural gas costs also impacted gross profit margins. In Texas, because lime demand remained strong during the third quarter, the Company was not able to build back inventories following the June floods, and has had to continue to purchase lime from outside sources to fulfill customer commitments. Another factor impacting gross profit and gross profit margins in the third quarter has been a decline in pulverized limestone sales. Gross profit decreased to \$5,643,000 for the first nine months of 2000, from \$6,805,000 for the first nine months of 1999, a 17.1% decrease. Gross profit margin for the nine months ended September 30, 2000 decreased to 22.1%, from 28.6% in 1999.

Selling, general and administrative expenses ("SG&A") increased by \$138,000, or 15.9%, to \$1,008,000 in the third quarter of 2000, as compared to \$870,000 in the third quarter of 1999, due to the addition of sales and marketing personnel hired by the Company to assist in the redevelopment of the market at Arkansas Lime. SG&A as a percentage of sales increased to 10.8%, from 9.4% a year earlier. SG&A increased by \$141,000, or 5.3%, to \$2,816,000 in the first nine months of 2000, as compared to \$2,675,000 in the first nine months of 1999, and as a percentage of sales decreased to 11.0%, from 11.2%. Interest expense in the third quarter of 2000 was \$721,000, as compared to \$696,000 in the same period in 1999. Interest expense for the first nine months of 2000 was \$2,542,000, as compared to \$1,730,000 in the same period in 1999. The 2000 increase was attributable to a higher debt balance. Additional incurred interest costs of approximately \$488,000 and \$994,000 were capitalized in the third quarter and first nine months, respectively, of 2000 as part of the Arkansas modernization and expansion project.

Other income decreased by \$51,000 to \$104,000 in the third quarter of 2000, as compared to \$155,000 in the third quarter of 1999. Other income increased by \$367,000 to \$654,000 in the first nine months of 2000, as compared to \$287,000 for the same period in 1999. The nine months increase was attributable to

interest income received on funds held in escrow to finance the redevelopment of the Company's Arkansas operations.

The Company reported net income of \$285,000 (\$0.07 per share) during the third quarter of 2000, compared to net income of \$1,113,000 (\$0.28 per share) during the third quarter of 1999. For the first nine months of 2000, the Company reported net income of \$704,000 (\$0.18 per share), compared to net income of \$2,015,000 (\$0.51 per share) in the first nine months of 1999.

EBITDA (earnings before interest, taxes, depreciation and amortization) was \$2,267,000 for the third quarter of 2000, a decrease of 33.0% from the third quarter of 1999 of \$3,386,000. For the nine months ended September 30, 2000, EBITDA was \$7,079,000, a decrease of 10.4% from the \$7,900,000 generated in the same period in 1999.

FORWARD-LOOKING STATEMENTS. Any statements contained in this Quarterly Report that are not statements of historical fact are forward-looking statements as defined in the Private Securities Litigation Reform Act of 1995. Forward-looking statements in this Report, including without limitation statements relating to the Company's plans, strategies, objectives, expectations, intentions, and adequacy of resources, are identified by such words as "will," "could," "should," "believe," "expect," "intend," "plan," "schedule," "estimate," and "project." The Company undertakes no obligation to publicly update or revise any forward-looking statements. Investors are cautioned that forward-looking statements involve risks and uncertainties that could cause actual results to differ materially from expectations, including without limitation the following: (i) the Company's plans, strategies, objectives, expectations, and intentions are subject to change at any time at the discretion of the Company; (ii) the Company's plans and results of operations will be affected by the Company's ability to manage its growth and modernization; and (iii) other risks and uncertainties, including without limitation those risks and uncertainties indicated from time to time in the Company's filings with the SEC, including the Company's Form 10-K for the fiscal year ended December 31, 1999 and its Form S-3 filed with the SEC on November 1, 2000.

#### ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURE ABOUT MARKET RISK

Not applicable.

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Company Name: PEC SOLUTIONS INC



## MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

### Overview

PEC Solutions is a professional services firm specializing in high-end solutions that help government organizations capitalize on the Internet and other advanced technologies. We migrate paper-intensive procedures to web-enabled processes using eGovernment solutions that help our clients enhance their productivity and improve the services they offer to the public.

As a total solutions provider, we address the full technology lifecycle, including formulating technology strategies, creating business solutions, performing long-term operational management and continuing enhancement of the solution.

As part of our growth strategy, we have completed our acquisition of Viking Technology, Inc. ("Viking") on August 28, 2000. The business combination was accounted for as a purchase. See "Acquisitions".

We derive substantially all of our revenues from fees for consulting services.

We generate these fees from contracts with various payment arrangements, including time and materials contracts, fixed-price contracts and cost-reimbursable contracts. During the three months and nine months ended September 30, 2000, revenues from these contract types were approximately 69%, 19% and 12%, and 66%, 22% and 12%, respectively, of total revenues. We typically issue invoices monthly to manage outstanding accounts receivable balances. We recognize revenues on time and materials contracts as the services are provided. We recognize revenues on fixed-price contracts using the percentage of completion method as services are performed over the life of the contract, based on the costs we incur in relation to the total estimated costs. We recognize and make provisions for any anticipated contract losses at the time we know and can estimate them. Fixed-price contracts are attractive to clients and, while subject to increased risks, provide opportunities for increased margins. We recognize revenues on cost-reimbursable contracts as services are provided. These revenues are equal to the costs incurred in providing these services plus a proportionate amount of the fee earned. We have historically recovered all of our costs on cost-reimbursable contracts, which means we have lower risk and our margins are lower on these contracts.

Our historical revenue growth is attributable to various factors, including an increase in the size and number of projects for existing and new clients. Existing clients from the previous year generated approximately 93% and 95% of our revenues in the three months and nine months ended September 30, 2000, respectively. As of September 30, 2000, we had 502 employees, including 20 Viking employees.

In the three months and nine months ended September 30, 2000, we derived approximately 24% and 36%, respectively, of our revenues through relationships with prime contractors, who contract directly with the end-client and

subcontract with us. In most of these engagements, we retain full responsibility for the end-client relationship and direct and manage the activities of our contract staff.

Our most significant expense is direct costs, which consist primarily of project personnel salaries and benefits, and direct expenses incurred to complete projects. Our direct costs as a percentage of revenues are also related to the utilization rate of our consulting employees. We manage utilization by frequently monitoring project requirements and timetables. The number of consulting employees assigned to a project will vary according to the size, complexity, duration and demands of the project. General and administrative expenses consist primarily of costs associated with our executive management, finance and administrative groups, human resources, unassigned consulting employees, employee training, occupancy costs, depreciation and amortization, travel and all other branch and corporate costs. Sales and marketing expenses include the costs of sales and marketing personnel and costs associated with marketing and bidding on future projects.

Other income consists primarily of interest income earned on our cash, cash equivalents and marketable securities.

#### Acquisitions

On August 28, 2000, the Company acquired all of the outstanding capital stock of Viking for \$2 million cash plus the assumption of debt in a business combination accounted for as a purchase. Viking is a leading provider of integrated software and advanced technology solutions to state and local law enforcement, fire, and emergency medical service agencies. The excess of **purchase** price over the fair value of the net **assets** was approximately \$4.6 million. The fair value of the assets acquired and liabilities assumed has been based on preliminary estimates and may be revised at a later date. At the time of the acquisition, Viking had 20 employees.

#### Results of Operations

The following table sets forth certain financial data as a percentage of revenues for the periods indicated.

THREE

MONTHS ENDED NINE MONTHS ENDED

SEPT 30,

SEPT 30, SEPT 30, SEPT 30,

2000

1999 2000 1999

(Dollars in thousands)

Statement of Income:

Revenues .....	\$	17,695	\$
----------------	----	--------	----

13,394 \$ 49,892 \$ 38,593	
Direct costs .....	9,337
7,618 27,267 22,069	
-----	
-----	
Gross profit (a) .....	8,358
5,776 22,625 16,524	
-----	
-----	
Other operating costs and expenses	
General and administrative expenses .....	4,276
2,759 12 857 8,797	
Sales and marketing expenses .....	935
549 2,070 1,456	
Amortization of goodwill .....	76
-- 76 --	
-----	
-----	
Total other operating costs and expenses	5,287
3,308 15,003 10,253	
-----	
-----	
Operating income .....	3,071
2,468 7,622 6,272	
Other income, net .....	673
63 1,261 141	
-----	
-----	
Income before income taxes .....	3,744
2,531 8,883 6,413	
Provision for income taxes .....	1,475
962 3,458 2,437	

-----			
-----			
Net income .....	\$	2,269	\$
1,569 \$ 5,425 \$ 3,976			
=====			
===== As a Percentage of Revenues:			
Revenues .....		100.0%	
100.0% 100.0% 100.0%			
Direct costs .....		52.8	
56.9 54.7 57.2			
-----			
-----			
Gross profit (a) .....		47.2	
43.1 45.3 42.8			
-----			
-----			
Other operating costs and expenses:			
General and administrative expenses .....		24.1	
20.6 25.8 22.8			
Sales and marketing expenses .....		5.3	
4.1 4.1 3.8			
Amortization of goodwill .....		0.4	
-- 0.1 --			
-----			
-----			
Total other operating costs and expenses		29.8	
24.7 30.0 26.6			
-----			
-----			
Operating income .....		17.4	
18.4 15.3 16.2			
Other income, net .....		3.8	
0.5 2.5 .4			

	-----
-----	
Income before income taxes .....	21.2
18.9 17.8 16.6	
Provision for income taxes .....	8.3
7.2 6.9 6.3	
	-----
-----	
Net income .....	12.9%
11.7% 10.9% 10.3%	

=====

=====

(a) Gross profit represents revenues less direct costs, which consist primarily of project personnel salaries and benefits and direct expenses incurred to complete projects.

#### RESULTS OF OPERATIONS FOR THE THREE MONTHS ENDED SEPTEMBER 30, 2000 COMPARED

WITH THE THREE MONTHS ENDED SEPTEMBER 30, 1999

REVENUES. For the three months ended September 30, 2000, our total revenues increased by 32.1%, or \$4.3 million over the same period last year. The increase in revenues primarily reflects an increase in the volume of services

to existing clients. It also includes revenue of \$140,000 from Viking for the

one month subsequent to the closing of the acqu

DIRECT COSTS. For the three months ended September 30, 2000, direct costs increased by 22.6%, or \$1.7 million, over the same period last year. The increase was due primarily to an increase in project personnel to 428 as of September 30, 2000, including 16 Viking employees, as compared to 364 as of September 30, 1999. Direct costs decreased as a percentage of revenues for the period ended September 30, 2000, to 52.8% as compared to 56.9% in the same period last year, due to normal fluctuations in labor and other direct costs.

GROSS PROFIT. Gross profit increased by 44.7% to \$8.4 million in the three months ended September 30, 2000 from \$5.8 million in the three months ended September 30, 1999. Gross profit as a percentage of revenues increased to 47.2% in the three months ended September 30, 2000 from 43.1% in the three months ended September 30, 1999, as direct costs grew at a slower rate than revenues due to normal fluctuations in labor and other direct costs.

GENERAL AND ADMINISTRATIVE EXPENSES. General and administrative expenses increased 55.0% to \$4.3 million in the three months ended September 30, 2000 from \$2.8 million in the three months ended September 30, 1999. Facility costs increased in the current quarter over last year due to the opening of our

new offices in Fairfax, Virginia. Our total general and administrative headcount increased to 74 employees as of September 30, 2000, including 4 Viking employees, compared to 46 employees as of September 30, 1999, consistent with our plans.

SALES AND MARKETING. Sales and marketing expenses increased 70.3% to \$0.9 million in the three months ended September 30, 2000 from \$0.5 million in the three months ended September 30, 1999. This increase was due to an increase in our marketing efforts.

AMORTIZATION OF GOODWILL. In the quarter ended September 30, 2000, we incurred \$76,000 of amortization expense related to the \$4.6 million of goodwill we recorded in connection with the acquisition of Viking.

OPERATING INCOME. Operating income increased 24.6% to \$3.1 million in the three months ended September 30, 2000 from \$2.5 million in the three months ended September 30, 1999. This increase was due primarily to increased revenues and decreased costs as a percentage of revenues.

RESULTS OF OPERATIONS FOR THE NINE MONTHS ENDED SEPTEMBER 30, 2000 COMPARED WITH THE NINE MONTHS ENDED SEPTEMBER 30, 1999

REVENUES. For the nine months ended September 30, 2000, our total revenues increased by 29.3%, or \$11.3 million, over the same period last year. The increase in revenues primarily reflects an increase in the volume of services to existing clients. It also includes \$140,000 of revenue from Viking for the one month subsequent to the closing of the acquisition.

DIRECT COSTS. For the nine months ended September 30, 2000, direct costs increased by 23.6%, or \$5.2 million, over the same period last year. The increase was due primarily to an increase in project personnel to 428 as of September 30, 2000, including 16 Viking employees, as compared to 364 as of September 30, 1999. Direct costs decreased as a percentage of revenues to 54.7% due to normal fluctuations in labor and other direct costs.

GROSS PROFIT. Gross profit increased by 36.9% to \$22.6 million in the nine months ended September 30, 2000 from \$16.5 million in the nine months ended September 30, 1999. Gross profit as a percentage of revenues increased to 45.3% in the nine months ended September 30, 2000 from 42.8% in the nine months ended September 30, 1999, as direct costs grew at a slower rate than revenues due to normal fluctuations in labor and other direct costs.

NEW YORK, Nov 1, 2000 (BUSINESS WIRE) -- Pomerantz Haudek Block Grossman & Gross LLP ([www.pomerantzlaw.com](http://www.pomerantzlaw.com)) will be filing a class action lawsuit against Rent-Way, Inc. ("Rent-Way" or the "Company") (NYSE: RWY) and four of the Company's senior executives.

The case will be filed in the United States District Court for the Eastern District of Pennsylvania on behalf of all those persons or entities who purchased the common stock of Rent-Way during the period between January 18,

2000 through October 27, 2000, inclusive (the "Class Period").

The Complaint alleges that Rent-Way and its executives violated Sections 10(b) and 20(a) of the Securities Exchange Act of 1934 by allegedly issuing materially false and misleading financial statements that misstated the Company's net income and earnings by under-reporting expenses during the Class Period. In particular, Rent-Way's statements regarding the Company's fiscal 2000 interim financial results, its record financial results and its ability to reach growth targets and analyst projections were materially false and misleading since the Company's reported financial results and growth were allegedly attributable to improper accounting practices which resulted in overstatement of net assets. When Rent-Way announced to the market on October 30, 2000 that it was investigating certain accounting matters which would result in the restatement of financial results for the interim periods of fiscal 2000, the price of the Company's stock fell by almost 80%.

If you purchased Rent-Way common stock during the Class Period, you have until January 2, 2001 to ask the Court to appoint you as one of the lead plaintiffs for the Class. In order to serve as lead plaintiff, you must meet certain legal requirements. If you wish to discuss this action or have any questions, please contact Andrew G. Tolan, Esq. of the Pomerantz firm at 888/476-6529 (or (888) 4-POMLAW), toll free, or at [agtolan@pomlaw.com](mailto:agtolan@pomlaw.com) by e-mail. Those who inquire by e-mail are encouraged to include their mailing address and telephone number. The Pomerantz firm is acknowledged as one of the premier firms in the areas of corporate, securities, and antitrust class litigation. Founded by the late Abraham L. Pomerantz, known as the dean of the class action bar, the Pomerantz firm pioneered the field of securities class actions. Today, over 50 years later, the Pomerantz firm continues in the tradition he established, fighting for the rights of the victims of securities fraud, breaches of fiduciary duty, and corporate misconduct. The Firm has recovered numerous multimillion dollar damages awards on behalf of class members.

The Pomerantz firm's Senior Partner, Stanley M. Grossman, leads a team of attorneys who litigate in Courts throughout the United States. They have received wide recognition from the Courts and other attorneys for their competence.

CONTACT: Pomerantz Haudek Block Grossman & Gross LLP, New York  
Andrew G. Tolan, Esq., 888/476-6529 or 888/4-POMLAW  
[agtolan@pomlaw.com](mailto:agtolan@pomlaw.com)  
TICKERS: NYSE:RWY  
URL: <http://www.businesswire.com>

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Company Names: rent-way, inc.; RENT WAY INC; COURT

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CORPORATE; INSTITUTIONS; LEGAL

Event Names: COMPANY PROFILES; CORPORATE FINANCIAL DATA; LEGAL

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106/9/20 (Item 20 from file: 15)

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#### Abstract:

The recent economic, structural, and demographic factors that underlie the marked changes in the ABS collateral pool, the expansion , activity in emerging markets, as well as other major developments in the international asset-backed securitization market are studied. Of particular interest are developments associated with the ongoing consolidation in the financial services area and the increasing institutionalization of savings. Common structural elements of ABS transactions is examined; it provides a template against which recent developments are analyzed. The benefits of securitization to issuers and investors are explored. Some of the regional variations in securitization activity are examined.

#### Text:

Trends and Developments In Securitisation\*

##### 1. Introduction and overview

In normal market parlance, the term "securitisation" has had two primary meanings: Initially, the term was applied to the process of disintermediation, or the substitution of security issues for bank lending. More recently, the term has been used to refer to so-called "structured finance", the process by which (relatively) homogeneous, but illiquid, assets are pooled and repackaged, with **security interests** representing claims to the incoming cash flows and other economic benefits generated by the loan pool sold as securities to third-party investors. Such asset-backed securities (ABSs) may take the form of a single class offering, in which all investors receive a pro rata interest in the incoming revenues from the asset pool, or a multiclass offering, whereby two or more classes or tranches are granted different (and, in some cases, uncertain) claims, each with its own pay-out and risk characteristics. The term securitisation is usually applied to transactions



in which the underlying assets are either removed from the sponsor's balance sheet, or never appear there after origination. Unless otherwise stated, this is the definition employed herein.<sup>1</sup> However, it should be noted at the outset that, in some jurisdictions, originators can achieve similar objectives by "ring-fencing" or segregating the assets, which for accounting purposes remain on balance sheet. A number of OECD countries in Europe have well-established systems of "on-balance sheet" securitisation, whereby specialised lenders fund themselves long-term by issuing bonds. The bonds may be backed by a range of assets, but residential mortgages are the most commonly used collateral. Historically, the most extensive markets have been found in Denmark, Germany, and Sweden, but similar markets in asset-related bonds also exist in Austria, Finland, France, Italy, the Netherlands, Spain, and Switzerland.

A lot has changed in the ABS market over the past few years, in terms of who is issuing, what is being issued, and who is investing. Recent trends include a blurring distinction between structured finance and corporate finance, increased use of derivatives and securitisation in the same transaction, increased use of securitisation to convert insurance risk into capital market risk, and, on the ratings front, an increase in the number of downgrades. There also have been marked changes in the legal and regulatory environment, including in some instances, a loosening of restrictions on acceptable investments by pension funds and life insurance companies. In some countries, the basic legal, regulatory, tax, and accounting infrastructure for securitisation has been implemented for the first time, while in others, certain refinements have been introduced to existing securitisation legislation to better facilitate balance sheet restructuring. Recent years have also witnessed the growth and development of sophisticated tools for assessing and managing credit risk. This has led to increased liquidity in swap and hedging markets, which has facilitated growth in some types of ABS instruments.<sup>2</sup>

Issuance of asset-backed securities has registered strong growth in recent years and recent developments suggest that growth should remain strong going forward. More importantly, securitisation is being used increasingly to implement portfolio re-balancing strategies. As the yardstick for investment performance moves closer to a global standard, increased emphasis is being placed on such performance-based measures as return-on-assets and return-on-equity. In response, banks and non-financial corporations as well have turned to securitisation to improve their financial ratios by removing selected assets from their balance sheets. In Europe, banks have turned to securitisation as a tool for improving profitability by freeing up capital allocated to low-yielding assets, a strategy that appears to have started in the restructuring of the market in the United States in the late- 1980s. In Asia, the technique is being used primarily to provide immediate capital relief. More broadly, the global economy is contributing to a new wave of mergers and acquisitions. Securitisation is being applied to many of these transactions in combination with traditional bank financing; as a consequence of these hybrid transactions, the distinction between loans and securities has become blurred.

This study examines the recent economic, structural, and demographic factors that underlie the marked changes in the ABS collateral pool, the expansion of activity in emerging markets, as well as other major developments in the international ABS market. Of particular interest are developments associated with the ongoing consolidation in the financial services area and the increasing institutionalisation of savings. The study is organised as follows. Section II looks at common structural elements of ABS transactions; it provides a template against which recent developments are analysed. Section III explores the benefits of securitisation to issuers and investors. Section IV briefly examines some of the regional variations in securitisation activity.

## II. Structuring

### 1. Types of assets

In order for asset pools to be feasible for securitisation, they must be of relatively identifiable, though not necessarily low, default risk. Securitisation techniques rely heavily on the development of extensive historical databases that record the loss experience of many comparable assets. In the absence of adequate information on credit performance, loss probability distributions for different types of borrowers, businesses, or loans cannot be reliably estimated. Loan originators who specialise in evaluating loan proposals can usually distinguish better credit risks from poorer ones, but this assessment of quality is often subjective and somewhat difficult to quantify. Faced with this information asymmetry, rationale investors would add a sizeable discount to the implicit price at which the underlying **assets** are **purchased** to compensate for the increased uncertainty regarding the credit risk of the **assets** in the pool. The issuer can reduce the size of this discount by securing the assets with collateral that can be valued with relative certainty, or by including substantial credit enhancements in the securitisation. Of course, high levels of credit enhancement add significant costs to the securitisation of an asset pool and can render the transaction uneconomical. As a consequence, securitisation has often been used for assets for which the costs of acquiring and distributing information to rating agencies and investors about loans and borrowers is low, a result of standardised loan underwriting criteria and advances in information technology, which have made it easier to estimate default probabilities and payment patterns under a variety of economic conditions. The process of pooling such assets into large homogeneous groups facilitates an actuarial analysis of their risks, which enables credit rating agencies and, in some cases, third-party credit guarantors, to review and validate the lender's initial credit underwriting decisions.

Among asset classes, residential mortgages are the dominant form of collateral for ABS in most jurisdictions, because they are generally more homogeneous, easier to pool and easier for the rating agencies to analyse than other asset types. The first mortgage pass-through securities were issued in the United States in 1970, making single-family mortgages the first loans to be securitised off-balance sheet.<sup>3</sup> Owing in part to the implied guarantees and loan purchase programmes of the mortgage-related government sponsored enterprises in the United States, underwriting guidelines for one-to-four family mortgages have been sufficiently standardised that they can be insured on an actuarial basis at relatively low cost. The issuers of mortgage-related securities add some supplemental guarantees, but most of the assurance is inherent in the underlying collateral and the ability of mortgage insurers to guarantee the ultimate payment of interest and principal, while the servicers and issuers assure the timeliness of payments. This has substantially reduced the cost of pooling and securitising the underlying loans, and has led to strong growth in issuance. In the United States alone, there currently are approximately \$2.0 trillion of securitised mortgages outstanding. Residential mortgages also account for a large share of asset-backed deals outside the United States.

There tends to be a natural progression to growth and development of the ABS market: residential mortgages tend to be securitised first for the reasons cited, after which come mortgages on commercial properties, consumer receivables and then other asset classes.<sup>4</sup> Over time, the collateral mix backing ABS has expanded considerably, particularly in the United States, where off-balance sheet techniques for securitisation have progressed the furthest. But even in less developed markets, the

application of securitisation techniques has become more widespread. Recent years have witnessed the emergence of a variety of new asset classes and structures, an expansion in the investor base, and a marked increase in cross-border activity. Indeed, since the previous OECD study of international securitisation was published in 1995, the number of institutional investors participating in some sectors of the ABS market has more than doubled, and commercial and industrial (C&I) loans at banks, assets that once were deemed too difficult to securitise owing to their lack of uniformity in loan terms, structures, and prepayment patterns, now comprise the fastest growing segment of the ABS collateral pool.<sup>5</sup> Thus, securitisation techniques, which were once viewed primarily as a means of raising low-cost funds to finance mortgages and consumer receivables, are now used routinely to finance assets as diverse as tequila, motion picture revenues, stranded costs and intellectual copyrights. Nonetheless, economically speaking, there are practical limits to the types of assets that are viable candidates for securitisation and market reports indicate that the number of profitable opportunities are becoming less plentiful.<sup>6</sup> Thus, while the range of assets that have been securitised has continued to expand over time, the pace has begun to slow.

## 2. Sponsor, trustee, servicer

A typical structured financing or off-balance sheet securitisation begins with a pooling and servicing agreement among a sponsor, which often is (but need not be) the originator of the assets, a trustee, and a servicer.<sup>7</sup> The ABS agreement establishes the legal entity that will be the issuer of the securities and governs the transfer of the assets from the originator to the issuer (and ultimately to the trustee). It also sets forth the rights and responsibilities of the parties and typically contains a number of representations or other provisions about the characteristics of the underlying assets. In many securitisations, the sponsor transfers a fixed pool of assets, which it owns, to the issuer (either directly or through a subsidiary) in return for the proceeds from the sale of securities backed by these assets. The relationship between the various parties to an off-balance sheet securitisation are shown in Chart 1, which presents a diagram of the structure of a stylised ABS transaction.

The issuer in a structured financing may be a "special purpose vehicle" (SPV) whose only business activity is to acquire and hold the assets, and issue securities backed by the assets. The servicer is the primary administrator of the securitisation. Often the sponsor or an affiliate of the sponsor is the servicer, but the servicing function may instead be carried out by a third party that is not necessarily in the business of originating the type of assets that it services. The sponsor's ability to service the assets is often an integral component of the ongoing viability of an ABS transaction. This is especially true when the underlying assets are complex and the securitisation itself relies on the periodic origination of new assets. To properly administer the securities, the servicer must be able to perform a number of tasks, which vary depending on the type of assets involved. Among the tasks to be performed are: collecting on delinquent loans and recovering on defaulted loans (all asset types), repossessing and disposing of collateral (auto loans and equipment leases), and generating new receivables in accordance with underwriting standards (revolving credits such as credit card loans).

The role of the trustee in ABS transactions is to act on behalf of the holders of the securities. Its principal duties are to ensure the orderly payment of interest and the final payment of principal at maturity. The trustee acts as intermediary between the issuer and the investor in the event of default. Usually, trustees are appointed by the issuer for the life of the underlying bond issue.

In addition to these parties, a given securitisation might have other direct participants as well. Certainly for public offerings, one or more of the international rating agencies will be called upon to rate the transaction. There may also be other agents, such as derivative counterparties for currency and interest-rate swap and/or other hedging arrangements. The issuer may also need to enter into forward-sale agreements with the derivative counterparty. In the case of physical definitive certificates, a custodian will be named whose duties generally are to hold the relevant instruments in its clearing account. In general, the more complex the ABS transaction, the greater the number of agents involved.

### 3. Separation of the assets from the Originator/Sponsor

Securitisation relies to varying degrees on the separation of the assets from the originator. This is one of the basic tenets of securitisation, especially the off-balance sheet variant. The asset pool is pre-specified, so final investors bear only the risks on a clearly delineated, existing pool of loans or receivables that meet specific criteria. Investors are not exposed to other types of risks that would be associated with a direct credit exposure to the originator, such as geographic concentrations or other imbalances in the lender's portfolio, changes in underwriting standards, or the lender's exposure to non-credit losses or losses on other assets.

One of the initial questions to be addressed in structuring a securitisation is whether the originator needs to sell its assets (off-balance sheet treatment), or whether the same objectives can be achieved by ring-fencing the assets (on-balance sheet financing). Often, the approach taken is determined by the nature of the assets to be securitised. In practice, different securitisation structures are used for assets that are discrete and self-liquidating as compared with revolving credits. ABS structures also tend to vary across jurisdictions, with markets in the United States and other "common law" countries generally relying on off-balance securitisations, while on-balance sheet financings have historically been more popular in continental Europe, although competitive pressures have begun to raise the incentives for originators in Europe to use off-balance sheet arrangements as well.

#### Forms of separation

Assuming there are no constraints (such as binding financial or anti-disposal covenants, or negative pledges) on the transfer of assets from the originator, the assets can readily be removed from the originator's balance sheet. A variety of methods exist to accomplish the transfer, depending on whether a full or partial transfer is desired. Two of the common approaches used for direct sales of the assets involve the use of SPVs or "conduits", which are themselves a special type of SPV.

\* Special purpose vehicles: assignment and direct sales

As noted previously, the issuer in many ABS transactions is typically a SPV whose only business activity is to acquire and hold the assets and issue securities backed by the assets.<sup>8</sup> The legal entity or SPV used by sponsors to facilitate a particular securitisation depends on the type of assets being securitised, the structure of the securities sold, and the laws governing securitisation in the country of issuance. Legal concepts in the area of securitisation are often different, especially in the area of SPVs. Common law countries (e.g., Australia, the United Kingdom and the United States) follow different legal rules as compared with civil law countries (most other countries). The SPV itself can be a trust, a special limited partnership, or a special purpose corporation. These various legal entities

exist to facilitate different forms of economic activity and, thus, have specific accounting and tax rules governing their operations, including the tax consequences of various eligible and ineligible activities for both sponsors and investors. Despite fundamental differences in the types of economic activity for which a given SPV may be eligible (without incurring tax at the entity level), the primary objective of all these financing vehicles is to facilitate the indirect investment in the assets of the trust by parties other than the originators of these assets.

SPVs are normally used for tax efficiency and, as such, are often incorporated in advantageous tax zones, such as the Cayman Islands and the state of Delaware in the United States. Off-shore locations may also be used by originators in jurisdictions where local laws do not provide for the establishment of trusts or on-shore SPVs. Sponsors in these jurisdictions have used vehicles established under the laws of a foreign country, with the principal offices of the SPV domiciled in that country. A branch office of the SPV is then established in the sponsor's home country. Wherever located, SPVs for stand-alone financings like traditional ABS cease to exist after expiration of the underlying assets. Perfection (true sales)

As a general rule, the SPV itself must be insulated from any possible bankruptcy of the originator/sponsor. This separation of the sponsor from the financial assets being securitised is perhaps the central tenet of asset-backed securitisations. Accordingly, it is necessary early on in the process to establish how much control, if any, the sponsor retains over the SPV. In practice, most SPVs are established with a separate corporate existence from the sponsor as a first step, but that in itself is not sufficient. In order for the SPV's claim to the assets to be "perfected", it is important that the transfer of the assets from the sponsor to the SPV constitute a "true sale" and not a secured borrowing.<sup>9</sup> If the sponsor became subject to bankruptcy or reorganisation proceedings and the transfer of receivables from the sponsor to the SPV were considered to be a secured loan, then all cash flows arising from the underlying assets would become subject to the insolvency proceedings.

In many countries, laws are in place to allow the transfer of certain assets to SPVs for this express purpose. Provided certain requirements are met, these assets would not be considered part of the originator's estate in the case of bankruptcy. In the United States, for example, the Financial Accounting Standards Board's Statement No. 125 (FAS 125), "Accounting for Transfers and Servicing of Financial Assets", has governed the securitisation of financial assets.<sup>10</sup> The activities of a qualifying SPV are restricted by FAS 125, and the entity must have standing at law distinct from the seller, and it must either be a trust, a corporation or other legal vehicle whose activities are limited to holding title to financial assets, issuing beneficial interests in the form of debt or equity, collecting cash from the assets, reinvesting cash before investors are paid, and paying investors. Among the provisions of FAS 125 are general guidelines to ensure that a sponsor has surrendered control of its financial assets and can properly record a sale of those assets. That guidance is characterised by three basic principles: asset isolation, buyer control and seller non-control. Many ABS also rely on a "true sale" legal determination as a requirement for concluding that the sponsor is eligible to receive off-balance sheet treatment for accounting purposes. FAS 125 does not apply to securitisation transactions outside the United States, but in some jurisdictions where express guidelines are not available many sponsors look to FAS 125 for guidance in determining whether a securitisation transaction can be accounted for as a true sale. FAS 125 does apply to transactions by foreign subsidiaries included in consolidated financial statements of United States companies and foreign companies that adhere to Generally Accepted Accounting Principles for US Securities and

Exchange Commission filings. In any event, sponsors must take appropriate steps to ensure that the SPV has legally "perfected" its interests in the assets being securitised from any potential competing claims that might arise in the event that the sponsor becomes subject to insolvency proceedings.

\* Conduits

The securitisation of loans or receivables through a SPV is a fairly complex and data-intensive process that works best for large portfolios that are free from over-concentrations as to borrowers, industry, or geography. A pre-condition for making a securitisation financially viable for the sponsor is the existence of reliable statistics on the cash flows to be generated by the assets to be sold. A typical small lender may not have sufficient historical data to provide comfort to rating-agencies, and ultimately, to final investors. There may also be problems with over-concentrations, ratings constraints, or difficulties with public disclosures. An alternative to public, stand-alone securitisations for smaller players in the market is securitisation through a conduit. By pooling a variety of assets from multiple issuers, a conduit results in a larger, more liquid issue than would be possible for individual smaller players and is thus easier to market to investors. In addition, the conduit may be assigned a higher credit rating than stand-alone issues by the borrowers and thus may be more cost-efficient.

Most conduit programmes are associated with commercial bank asset-backed commercial paper. The assets that support the commercial paper may include loans, securities, trade receivables with maturities of between 20 and 45 days, which match the usual maturities of the commercial paper, and term assets where the maturities of the assets are longer than one year. Market participants estimate that there are well over 200 conduits currently in operation. There are three generic categories of conduit operations: single-seller SPVs, multi-seller conduits, and securities arbitrage vehicles. A single-seller SPV is a conduit established by a single originator to **purchase**

**assets**

it has originated. The sponsoring bank typically acts as the administrator and servicer of the SPV, although the latter would still be regarded to be a separate and distinct legal entity. Single-seller SPVs are normally used by originators with large, uniform asset volumes for securitisation.

Multi-seller conduits are the more common form of conduit operations in today's market. They are all typically established as remote-origination vehicles by commercial banks to provide funds to borrowers either through direct loans or through **asset**

**purchase**

**agreements**

according to which the SPV **purchases**

trade receivables or other

**assets**

. Usually, the SPV funds advances to the borrowers by issuing highly rated commercial paper. To achieve the high ratings, the sponsoring bank is often required by the rating agencies to provide a combination of direct credit enhancements and liquidity facilities to the SPV. As with single-seller conduits, a multi-seller conduit is legally not owned or affiliated with the sponsoring bank, although the bank does serve as the administrator of the conduit. As administrator and servicer, the bank performs the operational functions of the SPV, including deal structuring, monitoring and transaction reporting. Multi-seller conduits provide financing for institutions that individually are not sufficiently large enough to utilise a single-seller conduit but collectively can offer a more liquid issue.

The final form of conduit - securities arbitrage vehicles - are established to purchase rated securities, which are typically funded through issuance of short-term debt. The issuer profits from the spread between the yield on the underlying securities and the cost of the commercial paper used to purchase them. For a financial institution subject to regulatory capital requirements, the conduit provides a more capital-efficient means of investing in the securities, as it removes the assets from the institution's balance sheet.

As with typical ABS deals, conduit transactions are scrutinised by the rating agencies. Like public ABS deals, conduit programmes achieve separation from the sponsoring institution. However, unlike ABS transactions, which depend more or less on the quality of the assets, it is the programme itself rather than the underlying assets that is assessed for a rating. The credit rating serves two purposes: it provides investors with a credit quality benchmark, and is also important to the borrowers in the sense that the rating will have direct bearing on the pricing of the issue. With multi-seller conduits, individual borrowers would likely be concerned about the quality of the other assets in the conduit and the likelihood of a default on other seller pools, while a default on a single-seller pool would affect the entire programme.

\* Ring-fencing: sub-participations and credit derivatives

Historically, financial institutions wishing to reduce their exposure to selected obligors or industries in their loan portfolios, to address a potential lack of diversity as to geography, add liquidity or make other balance-sheet adjustments, have had four options at their disposal: 1) direct loan sales; 2) syndication, in which each bank participant is a direct party to the original loan agreement; 3) participations, which entail no direct contractual relationship between other bank participants and the obligor; and 4) assignments, which involve the outright sale of a portion of a loan's total principal amount. Securitisation schemes for loan portfolios have typically relied on true sales of the assets from the originator to the SPV, thereby receiving the full benefits under regulatory capital requirements. In many jurisdictions, transfers of assets from originators to a SPV are governed by civil law, which restricts the ability to assign or transfer loans off-balance sheet. In many countries, including several European and Asian countries, insolvency laws require that borrowers must either give their express consent in advance or be notified of the originator's intent to transfer or assign their loans. Otherwise, the transfer of the loans would not legally constitute a true sale and the SPV's claim to the assets would not be perfected against a borrower's rights of set-off against the originator or against a bankruptcy of the originator.<sup>11</sup> Because the transfer must be perfected with respect to each underlying obligor, the cost and effort required to achieve a "true sale" determination can quickly become prohibitive in the case of ABS structures backed by large volumes of "small-ticket" items such as consumer loans. Even in the case of large loans, the restriction has sometimes been binding in the sense that lenders have been reluctant to part with the "normal" banking relationship with large corporate clients associated with the transfer of the loans off-balance sheet.

Securitisation schemes are not static, however, and this particular constraint has been addressed recently by innovative uses of sub-participations and derivatives to transfer economic interests in the assets, which otherwise remain on the originator's balance sheet.<sup>12</sup> The ability to execute de-linked securitisations without borrower notification is a major innovation. Aside from the favourable treatment under risk-based capital guidelines, the degree to which the assets are de-linked from the sponsor/originator is an important factor considered by rating agencies in

assigning ratings to the securities backed by the underlying assets. Where the assets are fully separate from the sponsor, the rating agency can focus on the historical performance of the assets, the quality of servicing, etc., without taking into account the sponsor's own credit quality. This enables senior tranches to be rated above the ratings assigned to the sponsor, and results in tighter and more consistent offering spreads. indeed, it is generally not possible to achieve triple-A ratings without de-linkage, which at times is necessary for placement of the securities.

#### Sub-participations

The first securitisation by sub-participations was executed in late 1996. That issue was offered by a United Kingdom-based institution through a SPV, which took sub-participations in the underlying loans by placing unsecured deposits up-front with the originator, in exchange for the originator's agreement to pass through, on receipt, the cash flows on the dedicated pool of loans. The SPV financed the deposits partly by issuing **floating-rate notes** to investors and by issuing commercial paper, the latter through an associated SPV. Legal title to, and management of, the underlying loans remained with the originator. Thus, payments on the underlying loans were made to the account of the originator, before being passed on to the SPV. With traditional securitisations via outright sale or assignment, payments would be made to the originator only as agent for the SPV. The originator would have to enter into an administration agreement with the SPV, as it would not be the legal owner of the assets, and would have to identify and segregate payments on the securitised loans from others on its balance sheet.

#### Securitisation via credit derivatives

Greater liquidity in swap markets and other hedging markets has made it easier for institutions to meet internal credit risk targets for structured transactions. This development, combined with ongoing advances in credit risk quantification techniques and greater familiarity with these transactions by the rating agencies, has enabled institutions to transfer risks on selected credit exposures via the use of credit derivatives. The combination of credit derivatives and securitisation is more cost-efficient than a "pure vanilla" securitised transaction for highly rated banks, those with sub-LIBOR funding costs, as it enables them to continue to fund their portfolios while paying a relatively small premium for the hedge. Also, with the use of credit derivatives, the assets can remain on the borrower's balance sheet, which makes the structure feasible for hedging all types of financial assets. The use of derivatives also avoids potential legal and regulatory problems compared with traditional securitisations, which involve the transfer of assets from the balance sheet to a SPV. Provided necessary conditions are met, these transactions can provide regulatory capital relief; required risk-based capital is reduced by replacing the current 100 per cent risk weighting of the portfolio with a 20 per cent risk weighting on the lending bank through the credit default swap. Securitisation techniques are increasingly making use of credit derivatives to transfer risk where the originator is a highly rated entity.

One method for securitising loans directly without using a SPV is the issuance of credit-linked notes, either as stand-alone issues or as part of an existing medium-term note programme. The notes are linked to the performance of a specific number of borrowers. The credit-linked notes generally amortise in tandem with the underlying loans, which ensures that all economic interest in the securitised loans passes from the originator/sponsor to the investors. Investors are entitled to receive all payments of interest and repayments of principal on the loans in question, but also bear the credit risk, as sponsors are generally free from any obligation to compensate investors for any losses incurred from a default



by a borrower under an underlying loan. Because all cash flows (and credit risk) on the loans pass through to investors, credit-linked obligations enable banks to derive benefits of lower risk-based capital, without actually having to shrink their balance sheets. In some jurisdictions, originators may remove the loans from their balance sheets, provided the principal value of the notes sold and the book value of the loans are equivalent and other qualifying restrictions are met.

Another method for direct securitisation of loans is the use of swaps that reference a specific pool of assets. There are two variants: credit default swaps and total return swaps. With the former, the originator arranges with a counterparty to make regular payments (usually based on the principal amount of a reference loan pool) in exchange for protection against a specified credit event, which need not relate to the reference "securitised" assets; i.e., the credit default swap does not require the matching of cash flows between the underlying bonds and the securities as would be the case in an ABS transaction. The credit event can be defined in a number of ways, but commonly refers to a default or failure to pay by one or more borrowers. If the specified event occurs, the counterparty makes a payment to the originator. The payment by the counterparty may equal the principal amount of the loans less their market value, but may also take the form of a purchase price paid by the counterparty for the defaulted loans or a fixed amount that may or may not equal the principal amount of the securitised loans. With a total return swap, the originator agrees to pass through to its counterparty the cash flows received on a designated pool of loans plus any interim net increase in the market value of the loans. In return, the counterparty makes regular payments tied to some interest rate index, plus any net decrease in the market value of the loans between scheduled payment dates. On the occurrence of a specified credit event, the swap agreement terminates and a final payment is calculated. Both approaches enable the lender to transfer the risks on a pool of loans, without having to shrink its balance sheet or notify the borrowers.

#### 4. Credit Enhancement and Liquidity

The placement of ABS securities with investors generally requires giving the investors adequate protection against risk of default to eliminate the need for them to monitor collateral directly. This usually entails raising the credit rating of the securities relative to the lender's own rating or to what would be assigned to the underlying collateral. If the assets can be appraised relatively easily at a sufficiently high rating, the ABS issue can be a less costly source of funds for the originator/sponsor than a direct financing. In practice, the amount of credit enhancement needed for a particular asset pool depends on the credit rating agencies' assessments of the historical performance of the assets, the degree of diversification across obligors, industries, and geographic regions of the asset pool, the structure of the transaction, and the credit rating necessary to sell the securities. Where transactions are more complex or involving a new asset class, more credit enhancement may be needed to qualify for the highest rating. The level of payment support required is an important consideration inasmuch as it is largely the value of the securities receiving the highest credit rating (and thereby selling at the highest price) relative to the value of the total asset pool that determines the total proceeds from the securitisation and whether it makes economic sense for the sponsor to do the transaction.

There are two basic categories of credit enhancement: external and internal credit enhancements. External forms of credit enhancement, such as irrevocable letters of credit and financial guaranty insurance, may be provided by third parties with triple-A credit ratings. Irrevocable letters of credit are provided by a third-party bank to cover a portion of the asset pool. The amount of protection provided is normally equal to the

estimated loss profile for the loans in question and is often subordinated to the other enhancements. Third-party insurance is provided by non-bank, mono-line insurance companies. Assurance is sometimes provided in the form of a "wrap", which is a straightforward guarantee that the bonds will be paid in full and on time. Typically, a wrap is used to provide second-dollar loss protection that kicks in only after the first layer of credit protection has fully absorbed all expected credit losses plus some additional margin for unexpected losses. In some transactions, the insurer can call the bonds in the event of default.

In evaluating a given ABS transaction, the rating agencies assume that the credit quality of the securitisation cannot be higher than that of the weakest link in its enhancement package. Thus, with external credit enhancements, the rating of the senior securities in an ABS issue is typically capped at the rating level of the third-party guarantor, regardless of the quality of the underlying collateral. In most cases, sponsors rely on guarantors with triple-A credit ratings. In the past few years, downgrades in the credit ratings of third party credit enhancers have led many sponsors to opt for internal forms of credit enhancement.

Internal credit enhancements are credit support features that are inherent in the design of the securitisation. These features take a variety of forms and are often used in combination:

- \* A spread account may be used to hold funds in escrow; it is built up from the accumulated spread between the interest paid on the pooled assets and the lower amounts needed to pay interest and servicing fees on the securities issued. The originator in an ABS transaction typically receives the excess spread. In this case, however, instead of passing the spread back to the originator, the servicer passes on all funds collected to the trustee where the spread is accumulated up to the level required for the credit enhancement. After the account is fully funded, additional spread earnings are again passed back to the sponsor.

- \* Reserve accounts are pre-funded cash collateral accounts, whereby a deposit equal to the necessary credit enhancement is made (typically at closing by the sponsor) and held in escrow by the trustee for the benefit of the holders of the securities. The account may be drawn down if and when losses occur.

- \* Another common form of internal credit enhancement is over-collateralisation, whereby the value of the underlying assets in the pool exceeds the principal amount of the securities issued. In such schemes, the excess collateral generally must be maintained over the life of the securities at a level sufficient to provide the agreed amount of credit enhancement. If the value declines below the stated level, the credit enhancer is required to supply additional collateral to make up the short-fall.

- \* With a senior-subordinated structure, at least two classes of securities are issued. The senior class has the highest priority claim on the cash flows from the underlying assets, such that all losses will accrue first to the lower priority securities up to the amount of this particular class. With the protection afforded by lower priority claims, the senior class receives the highest credit rating. Lower rated classes are generally called subordinated or mezzanine classes, given their role as support tiers for the senior securities. These securities generally are given low investment-grade or speculative-grade ratings. The lowest priority claim, typically called the junior class, is the first class to absorb losses. It is often assigned a speculative-grade rating or may even be unrated.

- \* Early repayment is a feature common to all ABS with revolving periods.

Early repayment features are designed to force a wind-down of the programme and the rapid repayment of principal to the investors if the credit quality of the underlying loan pool deteriorates below a certain threshold.<sup>13</sup> Adverse credit events that could trigger an early payout include the seller's insolvency as well as a decline in available excess servicing.

\* With some ABS, for example, asset-backed commercial paper programmes, sponsors also provide liquidity enhancement. These conduit securitisations often include different types of receivables in the pool whose final maturity usually does not match that of the commercial paper. Consequently, at maturity the latter either has to be rolled over or replaced by new issues. To cover the risk that the issuer will be unable to renew the paper as it falls due the liquidity enhancer agrees to provide the funds required. From a technical standpoint, the liquidity enhancer only provides a short-term loan facility to the issuer and does not guarantee the securities. However, in so doing, the liquidity enhancer effectively takes on the residual risk beyond that provided by the credit enhancement of the underlying receivables.

As noted previously, the various forms of credit enhancement are often used in combination with one another, and, in effect, typically provide credit support equivalent to several multiples of the expected losses in the asset pool.

### III. Benefits of Securitisation

A company in search of external funds has two primary choices: borrow from financial institutions or raise funds directly in the capital markets. Depository institutions must provide a buffer layer of capital that is subordinate to the claims of depositors and other providers of low cost funds, and they typically endeavour to maintain capital cushions above the regulatory minimum. This buffer layer of capital is expensive. Thus, under normal market conditions, borrowers who raise money through the sale of securities have tended to face lower financing costs than borrowers whose credit is intermediated by banks, provided the costs of issuing the securities are less than the differential between the interest rate paid on the securities and the loan equivalent. Banks have tended to specialise in financing activities that are difficult to assess and contain a large measure of subjectivity. Over the course of a long-term relationship, banks may acquire information that helps to attenuate the information problems associated with certain lending activities. However, the costs of monitoring the borrowers are likely to be high.

Securitisation has typically been used for loans whose credit risk is relatively easy to assess and for which indirect monitoring mechanisms are adequate. Investors, in turn, have been willing to pay for the greater liquidity and credit transparency of securities over loans by accepting lower returns on securities than the equivalent loans would offer. Lenders gain access to a broader base of investors, where different investor categories are attracted to different financial products, which can result in increased liquidity and a means of achieving balance-sheet diversity. Assuming competitive markets, at least some of the benefits originators derive from securitisation may be passed through to borrowers in the form of lower funding costs.

#### Issuers

From an economic perspective, securitisation is a viable financing option only if the benefits of selling the assets exceed the costs. Institutions facing severe liquidity constraints and lacking other funding alternatives might opt for securitisation as a short-term expedient, but in general, securitisation depends on the ability to structure the transaction in such

a way that the total costs of converting the asset pool into securities and distributing them to investors is less than the spread between the amount that borrowers pay on the loans and the yield that investors require on the securities. 14 Moreover, securitisation must not be more expensive than other means of funding the assets, once the all-in costs are considered. The costs inherent in ABS secondary market transactions vary by type of asset and may differ from one region or country to another, because of differences in tax laws, securities laws, stock exchange regulations, and legal fundamentals regarding trusts. Costs involved in off-balance sheet securitisations typically include fees for establishing a trust or special purpose vehicle, underwriting fees, and servicing fees, but, depending on the jurisdiction, may also include value added taxes, withholding taxes, stamp duties, and other costs. Typically, where ABS markets have been slow to develop, the high cost of executing transactions has been a major inhibitor.

Securitisation is a data intensive process and entails a great deal of administrative and legal work. one precondition for making securitisation financially viable is the existence of reliable statistics on the cash flows generated by the assets to be sold. These statistics consist of historical data that are used to estimate the risk that these cash flows will be insufficient to cover the interest and principal payments on the loans raised by issuing bonds. Moreover, there must be historical performance data on similar assets during times of financial stress such as a recession or period of falling real incomes. The data must be produced in accordance with transparent accounting procedures that meet international standards. Where that is the case, subordinate pieces with ratings as low as double-B can be placed fairly easily. Where transparency is lacking, it is often not possible or not economically feasible (given the costs of credit enhancing deals) to securitise assets. in the face of heightened concerns about credit quality, even the most sophisticated investors may need to establish a high degree of comfort with the underlying assets. A key role for accountants involved with securitisations is due diligence determining whether the documents that are used to make disclosures to investors and are used to prepare scenarios of economic returns to those investors reflect the terms of the underlying financial assets. The manner in which this process is carried out varies, depending on the type of asset that is being securitised. For some asset categories, such as residential mortgages, due diligence may be required only for a subset of the assets in the pool, while for other assets, the level may step up to 100 per cent of the pool.

In some jurisdictions, conventional borrowing is seen as easier by originators/sponsors, for whom securitisation entails a prohibitive amount of documentation and structuring. There is clearly a learning curve associated with these techniques. However, once originators overcome the initial hurdles, securitisation techniques offer a number of advantages that can be suitable in a number of circumstances for a variety of corporate entities. For example, the biggest boon to securitisation in the United States was the lack of liquidity in the banking sector associated with asset-quality problems of savings and loan associations. Of course, the benefits are not limited to providing a means of addressing asset-quality problems. Securitisation techniques can enable originators to gain access to funding at rates normally reserved for entities with superior credit ratings. For originators at the low end of the investment-grade ratings spectrum, securitisation can provide access to longer term funding, while in the case of originators with sub-investment grade ratings or unrated originators, securitisation can provide access to the international capital markets that would not be possible via direct borrowing. In the principal finance, venture capital, and leveraged buyout businesses, the attraction of using the capital markets is that, because of the enhanced ratings and security, better terms can be negotiated to fund

an acquisition. Securitisation techniques also can be used to overcome or bypass restrictive covenants limiting the amount of secured debt.

The specific role of securitisation in an issuer's overall funding strategy depends on the nature of the institution. For banking organisations, securitisation provides liquidity while enabling the institutions to improve their capital adequacy ratio, together with their overall credit rating. Finance companies get a better match between the duration of their assets and liabilities. For underwriters and other advisory firms securitisation generates fee income. Insurers gain a means of accessing the capital markets without having to float large debt issues. Securitisation enables all portfolio lenders to diversify geographically or across sectors by passing along selected assets to third-party investors.

## Banks

As an asset class, the loan market is huge and easily dwarfs the bond market. Until recently, however, the bulk of C&I loans have been held almost entirely on the books of banks, but that pattern is definitely changing and many banks have begun to finance part of their loan portfolios by issuing securities backed by the loans. Liquidity in the loan market first became an issue in the late-1980s with the intense regulatory scrutiny given to highly leveraged transactions held on the balance sheets of commercial banks. This pressure from regulators was an important impetus behind the development of the secondary market for loans. Over the past few years, a number of external factors and the increased desire on the part of commercial banks themselves to manage their loan books as portfolios have further raised the incentives for banks to securitise loan assets. These external factors include asset-quality problems, competitive pressures and the need to increase shareholder value, and pressures to boost capital for regulatory purposes.

Banks in many jurisdictions have begun to realise the economic value of enhancing the liquidity of loan assets, in some cases because of increasing amounts of bad loans and declining margins for subordinated bond issues. In Japan, for example, the introduction of prompt corrective action has caused bank managers to pay even greater attention to the capital adequacy ratio and subsequently to liquidity enhancement and securitisation of their loan assets. Sharp declines in asset values in Southeast Asia have generated considerable capital pressures for Japanese banks and other Asian lenders, prompting a number of large financial institutions to undertake asset securitisations as a means of alleviating the problems.

The increase in the share of savings managed by mutual funds and other sophisticated institutions also has been of major importance. As owners of banks and corporations in general, these institutional investors have put pressure on management to improve profitability. While corporate governance standards do vary across jurisdictions, use of "shareholder value" is spreading and bank managers have responded to investor concerns. In Europe, the need for banks to improve their competitiveness under the single currency has led them to put greater emphasis on profitability and the efficient management of their balance sheets. Bank managers face a number of constraints in addressing the problem of low profitability. Perhaps the biggest constraint is the fact that the provision of credit is a fiercely competitive business and what might appear to be the simplest option - widening margins - is not easily done. In fact, before the market crisis in Asia, bank fees for investment-grade loans had been on a general downtrend since 1991 in the face of intense competition. As bank fees for investment-grade loans became more compressed over time, margins were squeezed to the point that the loans were no longer viable on a stand-alone basis for perhaps all but the highest rated banks. In the absence of any ancillary business to boost the return on the overall relationship, many

institutions could no longer afford to book such loans and meet capital requirements and provide an adequate return on equity to shareholders. This was especially the case for Japanese institutions and other capital-constrained banks, whose funding premiums had risen above levels at which they could profitably underwrite investment-grade loans. Securitisation has played a key role in addressing this strategic problem. Originating and then securitising new loans has enabled banks to profit from their distribution capacity, by raising the turnover, rather than volume, of their assets. If the bank acts as administrator for the securitisations, it receives a series of fee incomes rather than just one narrow interest spread.

Securitisation can also play a role in the adjustment process for banks with inadequate capital resources. Banks seeking to boost their regulatory capital have two options for doing so: 1) increasing the measures of regulatory capital appearing in the numerators of their capital ratios, e.g., by issuing subordinated debt or preferred stock, or 2) decreasing the regulatory measures of total risk appearing in the denominators of these expressions. In practice, many banks appear to react initially to capital pressures by expanding their capacity to absorb unexpected losses by raising additional equity capital, and by lowering their assumed risks.<sup>15</sup> Subsequently, however, banks have opted for strategies that lower measured risk. These strategies generally have entailed repackaging credit risk positions so as to concentrate the bulk of risks in assets with the smallest expected credit loss; structuring transactions so as to avoid recourse treatment; or converting credit risk positions into instruments having lower risk weights. Securitisation often plays a role in this process. Still, the natural ambition of many bankers is to maintain a large balance sheet, which is why the advent of on-balance approaches to securitisation has been such a noteworthy development. The bank retains its relationship with large customers, but is able to re-deploy the capital freed-up to other activities or pass along the savings to shareholders in the form of increased dividends or share repurchases.

Some market participants distinguish C&I loan securitisations from collateralised loan obligations (CLOs), which are in effect arbitrage transactions.<sup>16</sup> In a CLO, the transaction sponsor establishes a bankruptcy-remote SPV to **purchase** bank loans, corporate bonds, emerging market debt, or other high yield securities and issue **asset-backed** securities backed by the pool of assets. The transactions take two basic forms: cash flow and market value transactions. Cash flow transactions are similar to pass-throughs in the sense that payments on the securities are based on cash flows generated by interest payments and redemptions on the underlying loans and bonds. Market value transactions are somewhat more complicated structures relying on subsequent sales of collateral to fund payments on the securities. With both types of securities, the sponsor retains a layer of equity. In fact, the sponsor's incentive to execute the transaction is driven by the return that is expected on the retained equity. There are several determinants, but for the most part the return will depend on the credit spread between the SPV's assets (the underlying loans or bonds) and its liabilities (higher quality, but lower yielding, ABS).

CLOs are becoming more popular among European banks because they create a wind-fall of capital and cash but no apparent debt. Once loans are off its books and placed in an asset-backed trust, the bank no longer has to set aside capital to insure the loans. With its regulatory capital burden lifted, the bank has extra cash at its disposal that can then be re-deployed toward more profitable ventures. The bank is then in a better position to realise higher returns. CLOs have been part of the ABS market for many years. According to Moody's Investors Service, the first CLO, a transaction backed by United States bank loans, was rated in 1990. However,

volume has accelerated in recent years, especially in Europe. With the increased pressure brought on by monetary union, securitisation has become more attractive in Europe and CLOs are a very good tool for obtaining better regulatory capital treatment and for enhancing return on equity. In the past, most European banks would have been reluctant to sell loans in the bond market for fear of upsetting relationships with large corporate customers. Now, these relationships are taking a back seat to improving shareholder value. The old tradition of holding assets on balance sheet until maturity is no longer seen as sacrosanct. According to some estimates, CLO structures have been the dominant ABS product in Europe the past couple of years. Total CLO issuance on the international market was about \$6 671 million during the first quarter of this year, slightly ahead of the average quarterly pace in 1998 (Table 1).

The techniques used to securitise loans are also applied to other assets. Like CLOs, collateralised bond obligations (CBOs) also can be used as tools of risk management. A bank (or other institution) wishing to securitise a portion of its bond portfolio establishes a bankruptcy-remote SPV. The sponsor next extends a loan to the SPV, which is used to finance the acquisition of its own high-risk securities or, in the case of arbitrage transactions, those of a third party.<sup>17</sup> The SPV buys the designated pool of securities, repackages them into credit-enhanced securities which are then sold to institutional investors. The proceeds from the sale of the ABS are used to repay the initial loan from the sponsor. Historically, CBOs have been used primarily as a means of introducing significant amounts of leverage into securities portfolios. They are a popular investment vehicle for institutional investors (such as pension funds and mutual funds) who seek higher yielding investments, but are restricted, for the most part, to investments in higher-rated securities.

The certainty and timing of the cash flows is one of the main considerations behind the structure of the CBO tranches. In order to achieve triple-A ratings on the senior notes in a given CBO issue, there must be sufficient subordination at all times to cover the expected losses on the underlying pool. Credit ratings on CBO issues are also based on the overall maturity of the collateral and the degree of diversification inherent in the collateral pool. As noted, many CBOs are structured using emerging market bonds from countries with below-**investment** grade ratings. Thus, sovereign risk is of primary concern. In general, the **default** assumption that coincides with the foreign currency rating of the sovereign is used.

With the protection provided by various support classes, the senior tranches of CBOs have typically sold at relatively tight spreads to benchmark instruments. The subordinate pieces have historically been somewhat more difficult to place. Of course, difficult does not mean impossible and, except for periods of market turmoil, the market for lower-rated tranches of ABS in general has clearly broadened. Against the backdrop of narrowing spreads across almost all fixed-income markets, it has not been uncommon for institutional investors searching for higher yields to widen their investment parameters to include higher-risk assets.

A number of concerns have been raised in connection with asset securitisation by banks, whose important role in the payments system has led to their being accorded special protection by the public sector. Perhaps the main argument that has been lodged against securitisation is that banks will primarily securitise good loans and thereby lower the average quality of their loan portfolios. There are two main reasons why banks might choose to securitise their highest quality credits. For one, these loans are more likely to be standardised or easier to assess by rating agencies and other third parties than other types of loans. The second rationale stems from the way the existing capital adequacy guidelines are formulated. While the current BIS guidelines provide a means

of consistency in the measurement of capital for regulatory purposes, they may not actually capture true "economic risks" because gradations in credit quality are largely ignored. For example, under current rules, a bank investing in the securities of a triple-B rated financial institution would allocate a risk weighting of 20 per cent for purposes of calculating minimum capital (i.e., 8 per cent times 20 per cent times the size of the credit exposure). However, the same bank purchasing a triple-A rated ABS or corporate bond would have to assign it a 100 per cent weighting.<sup>18</sup> As the example illustrates, the capital adequacy requirements for certain types of loans are larger than the actual risk would seem to justify, at least as determined by their credit rating. Consequently, low-risk loans (e.g., loans to highly rated corporations), which therefore are charged low interest rates but which cost a great deal of shareholders' equity, are particularly profitable to securitise. Mortgage loans also have comparatively narrow margins, but their capital adequacy requirement is only half as high. If loans that entail "expensive" capital adequacy requirements compared to the actual risk are the main ones to be securitised, total capital adequacy requirements in banks will consequently decline relative to actual risk. Thus, a capital requirement that assumes a well-diversified portfolio of a given credit quality might prove to be too low if banks respond by lowering the average asset quality of the retained portfolio.

The counter-argument holds that it is not necessarily the case that the best loans - that is, those with the lowest credit risk - are the ones that are securitised. Success in securitisation requires that the credit rating agencies and external credit enhancers are able to make actuarial assessments regarding the payment streams that the underlying assets will generate. This presupposes that the loans to be securitised are fairly uniform from a credit risk perspective, but does not require that the loans necessarily be of a low-risk nature. In any event, in May of this year, the Basle Committee on Banking Supervision issued a consultative paper outlining a new framework for capital adequacy that has considerable bearing on this issue. Among the many aspects of the proposal is the introduction of a ratings-based approach to the determination of minimum capital standards. Under the proposed changes, only the highest sovereign paper would retain the current zero per cent risk weighting. The rules validate many aspects of asset securitisation, in the sense that mid-level and higher rated tranches of ABS would be put on par with (or in some cases above) other comparably rated investments. The risk weighting on corporate obligations and ABS in the highest rating categories (double-A and higher) would be reduced to 20 per cent from 100 per cent.

#### Insurers

Banks are not the only financial institutions for which securitisation has proved to be a useful tool. Insurance companies, which have historically participated in the ABS market on the buy-side, have also become occasional issuers. Insurance-linked securitisation has typically taken the form of bonds that transfer investors risks that are large but infrequent; i.e., those associated with natural disasters such as hurricanes and earthquakes.<sup>19</sup> Analysts estimate that, including the first issue in 1996, some thirty-five or so catastrophe risk transactions have been completed to date. Issuance in 1998 totalled about \$2.5 billion. The transactions have generally taken two basic forms. One variant entails an explicit transfer of risk, whereby in the event of the covered catastrophe the issuer is compensated for the amount of any damage, with no obligation to repay. This product is similar to ordinary reinsurance. Unlike the traditional insurance products, however, which typically run for only one year and must be re-negotiated, the catastrophe bond usually offers multiple years of protection, with five-year maturities not uncommon. A second catastrophe-linked product - risk financing ensures that the issuer has adequate



liquidity in the event the covered catastrophe occurs, by providing guaranteed access to funds at pre-determined rates. However, in this case, any amounts borrowed must repaid. SPVs are typically established to be the issuer of the catastrophe bonds.

Among the factors that motivated the development of catastrophe bonds were concerns that the reinsurance market was losing the capacity to handle exposures of the magnitudes associated with severe natural disasters, and the fact that pricing in the reinsurance market was thought by some participants to be too volatile, spiking sharply upwards in the event of a catastrophe, but dropping quickly when none occurs over a period of time. Compared with reinsurance, capital markets have much greater capacity and therefore should limit the price volatility, may keep premiums down and possibly enable insurers and reinsurers to provide insurance in regions where the price of the risk in the traditional insurance market would be prohibitively high. The rating on catastrophe bonds has been around the double-B mark and when compared with similar rated corporate or asset-backed issues, these issues have typically provided a substantial yield pick-up. However, spreads have begun to narrow as investors have become more familiar with these issues, and the market has grown in depth and the variety of issuers has increased.

#### Emerging market issuers

Issuers in emerging markets face the same basic problems as issuers in any other market - developed or otherwise - that is new to securitisation, as well as a few additional ones. There are, for example, general legal problems, such as whether assets can be assigned to a SPV; limits associated with sovereign ratings ceilings - or perhaps even the absence of any rating at all; local customs (such as the use or not of direct debits for consumer receivables); and the availability of currency swaps if receivables are denominated in the local currency. In some cases, however, governments have adopted a supportive attitude and have implemented trust laws and regulations that have facilitated the expansion of mortgage-backed securities as well as the repackaging of financial **debt obligations**. Once the basic framework has been established, issuers have stepped forward, and as in more developed countries, securitisation is also becoming more prevalent in emerging markets, although the rate of progress has clearly been uneven.

#### \* Credit ratings: the sovereign as ceiling

Except for a few issues at the market's inception in 1994, securitised emerging market transactions are usually rated. In fact, a rating is generally considered a basic necessity by the institutional investors that comprise the investor base for these securities, a mix of selected European and Japanese banks, as well as insurance companies and other institutional investors in the United States, including increasingly, banks and specialised funds.

Emerging market issues are typically rated on two fronts: 1) the local currency rating, and 2) the foreign currency rating.<sup>20</sup> The local currency rating addresses the default risk of the underlying obligors. It is based on an assessment of each company's operations, business environment, and ability to meet local **debt obligations**. The foreign currency rating addresses a company's ability to make payments denominated in the relevant foreign currency, which is often US dollars, but may also be yen, Sterling, or another benchmark currency. Foreign currency ratings typically are capped at the level of the foreign currency rating of the sovereign, the so-called "sovereign as ceiling" guideline followed by most credit rating agencies.<sup>21</sup> The rationale behind the sovereign ceiling is that, during times of severe financial stress, an emerging market government or central bank might attempt to ration, or restrict outright,

access to foreign exchange, thereby preventing a company from converting its local currency into a foreign benchmark currency and making scheduled payments of interest and principal. Because a company's ability to make foreign currency payments can be limited at the option of the sovereign, the credit rating of the transaction will be linked with any factors affecting the sovereign and, consequently, will generally be at or below the sovereign cap. While the sovereign ceiling is binding for most bonds, certain obligations can be assigned higher ratings. These include future flow transactions (e.g., export receivables securitisations, financial future-flow securitisations such as credit card structures, and telecom net-settlement receivable structures); and transactions from issuers with a significant amount of assets or revenues outside the host country. indeed, one of the basic intents of future-flow transactions is to separate the financial flows themselves from the issuer in order to achieve a rating for the transaction above the sovereign level of the issuer's country.

\* Future flow receivables versus existing assets

An emerging market ABS issue is structured to provide investors with access to the underlying credits, with a greater degree of protection from both the borrower and from sovereign risk than direct loans would entail. in return, borrowers obtain access to longer-term funding at lower funding costs than straight debt financing. if the transaction is structured properly, the credit quality of the originator (often an exporter, but other companies also use the structure) can take precedence over that of the sovereign. Future-flow transactions are often used by companies based in countries with below-investment grade credit ratings. Generally speaking, it is much more difficult to securitise pools of existing assets in countries with a volatile sovereign rating.

Although a reasonably mature market in the United States and Europe, securitisation of existing trade receivables is still in the developmental stages in the emerging markets. Unlike future-flow securitisation, the reliance is on existing assets and not on future, yet-to-be-generated assets. This characteristic breaks the link between the rating and the originator's performance, which enables those issuers whose credit quality constrains them from using the future-flow securitisation route to have access to the capital markets. In a typical trade receivables transaction, the existing trade receivables of the originator are assigned to a SPV, which issues securities backed by the assigned receivables. Trade receivables are typically of a short-term nature, and the normal paydown of the underlying assigned will be correspondingly short term. However, securitisations of trade receivables are often structured with maturities out to five years - possibly longer - through use of a revolving period. In the revolving period, the collections received from the receivables are used to pay interest only to the investors and the balance is used to repurchase new receivables.

Securitisations backed by existing assets are intended to separate the assets from the originator/sponsor, so that the asset pool is bankruptcy remote from the originator. This enables the pool to be rated above the rating assigned to the sponsor. However, for a sponsor in a country that does not have an investment-grade sovereign rating, the assets would not be rated above the sovereign cap, unless there is some additional form of protection or enhancement. Transactions have been completed, but usually only with substantial amounts of over-collateralisation. These transactions typically are placed with institutional investors in search of high-yield investments; they wouldn't be offered in the investment-grade sector.

\* Collateralised **debt obligations**

Emerging market debt has also benefited from arbitrage transactions, via so-called emerging market collateralised **debt**

**obligations.** An emerging market collateralised **debt obligation** begins with the purchase of a diversified portfolio of emerging market debt by the sponsor, which may or may not have been the originator of the assets, followed by the placement of the assets in a bankruptcy-remote SPV. The SPV in turn finances its acquisition of the assets by issuing securities, which are sold to third-party investors. In the typical structure, one completely subordinated (equity) tranche assumes the first-loss position, a second mezzanine tranche suffers losses only upon the depletion of the equity tranche, and a third tranche bears the least credit risk. The sponsor often retains the equity tranche, and thereby, most of the credit risk. Investors in the remaining tranches acquire an exposure to emerging market debt, but sacrifice some of the usual yield spread in exchange for the protection afforded by the equity layer.

#### Investors

ABS typically offer combinations of senior and subordinate tranches, each with distinct payment patterns and risk characteristics. Senior notes typically receive triple-A ratings and are sold in the public market, while the most junior pieces have risk-reward profiles (and associated ratings) of very high-yield bonds or pure equity and have often been placed privately or retained by sponsors. For investors, the attraction of ABS has lain in their combination of healthy, investment-grade credit ratings (for senior tranches) priced at attractive spreads to similarly rated, benchmark securities. Because the securitisation process involves passing on economic exposure to an independent collateral pool, the investor has no direct credit exposure to the originator of the assets. The credit quality of the issue depends, therefore, on the credit quality of the assets themselves, the structure of the transaction and on the investors' varying entitlement to the cash flows from the assets.

Asset-backed structures generally entail complex interest rate/credit risk combinations and trade-offs and, thus, have usually been acquired by relatively sophisticated investors who have developed the credit assessment skills necessary to evaluate the various alternatives. In general, investors' risk preferences have tended to vary within individual markets and across regions, and their familiarity with ABS structures varied greatly as well. The consensus view has been that investors in the United States possess both a higher appetite for risk and a greater familiarity with the more complex asset-backed structures. This owes in part to the fact that off-balance sheet securitisations have existed for a longer time in the United States financial market than in other regions. For example, the first off-balance sheet MBS transaction in Europe was executed in the United Kingdom in 1987, some seventeen years after mortgage-backed pass-through securities had their debut in the United States. Times have changed, however, and in recent years a growing number of investors world-wide have come to view ABS as appropriate alternatives to straight corporate bonds.<sup>22</sup>

The increase in the demand for ABS reflects a number of structural developments. To begin, there has been a pronounced shift of savings out of bank deposits and into equities and debt securities through investments in mutual funds. This phenomenon started in the United States but has since become much more widespread. A number of factors are contributing to this change. Foremost, among them is the pronounced change in savings patterns under way in most developed nations, prompted by nominal interest rates, which remain at or near historical lows; flat term structures associated with declining inflation expectations, which offer little scope for yield pick-up by moving out along the maturity spectrum; and the increased institutionalisation of savings, which partly reflects growing awareness of the implications of current demographic trends on future pension levels.

The result is that an increasing share of savings are being managed by sophisticated institutional investors, a mix of mutual funds (both closed-end and open-end), hedge funds, leverage funds, insurance companies, pension funds, and private asset managers (for an illustration, see Chart 2). Managers of these entities often use quantitative techniques to determine acceptable risk levels and industry exposures, and are likely to be driven by performance-based measures. Starved of yield in government bond and high-grade straight corporate debt markets, many asset managers have begun to opt for structured products such as ABS, which as noted before, typically carry high credit ratings, but provide higher yields than other bonds of similar maturity and credit quality. Thus, over time, the growth in issuance of ABS in many areas has been accompanied by the development of a more diverse investor clientele. In fact, in some market segments, ABS have been structured and priced specifically with institutional investors in mind.

This general quest on the part of institutional investors for higher yielding assets has contributed to the success of many traditional securitisation programmes, and prior to the onset of financial market turmoil in 1997 and 1998, had broadly encouraged interest in emerging market credits and loans to lower rated commercial entities. While the universe of potential investors still tends to shrink as one descends down the credit ratings ladder, a number of institutional investors had begun to shift some funds from straight corporate debt and more traditional ABS sectors toward higher yielding structures and equity derivatives. For example, the investor base for many emerging market ABS consists largely of foreign institutional investors, who have been attracted to the yield pick-up on these securities. Many mutual funds specialise in buying emerging market debt and insurance companies have also been major investors. Given the relatively recent introduction of securitisation to emerging market countries, domestic investors often have not yet developed the credit analysis tools needed to analyse ABS.

#### IV. Regional Variation In Securitisation

In the United States, regulatory and legislative initiatives clearly helped to pave the way for the development of a secondary market in home mortgage debt and other assets.<sup>23</sup> These efforts, a combination of subsidies or credit guarantees, such as the explicit and implicit guarantees provided by various government sponsored enterprises, established the basic framework of federal agency and non-government securities programmes that enabled lenders to raise funds at lower cost and with greater reliability than before. At the same time, investors were provided with readily marketable securities that offered competitive yields.

The secondary markets in the United States now play a significant role in channelling funds to consumers, home buyers, and businesses (the latter mostly via commercial paper conduit programmes, but other securities programmes are growing). In particular, securitisation provides a large share of home mortgage credit. Indeed, in the early to mid-1990s, almost three-quarters of net home mortgage lending in the United States was financed through securitisation. As of year-end 1998, the volume of outstanding agency plus non-agency MBS was about US\$2.6 trillion, accounting for roughly half of all outstanding mortgage credit. Issuance of ABS in 1998 totalled US\$284 billion (Table 2).

Compared with the experience in the United States, ABS/MBS markets in other jurisdictions have not achieved the same scale or breadth of development (see Table 1). Even among nations with well-developed financial markets, off-balance sheet securitisation techniques have become firmly established in only a handful of other countries (e.g., the United Kingdom, France, Australia, Spain, and Belgium). Even in the United Kingdom, where activity

has grown over several years, it is clear that the market, though covering several asset categories, is still not yet deep. There are a number of factors to account for this variation in issuance. In addition to the activities of the various secondary market agencies, securitisation in the United States has benefited from an accommodative legal framework and a transparent accounting system that have helped contribute to the growth and development of the ABS/MBS markets in that country, as least in comparison to civil code countries. The legal framework in the United States is grounded in common law, which allows for the use of trusts as special purpose issuing vehicles and, thus, is characterised generally by ease of transfer of assets off-balance sheet and by tax and accounting transparency. By contrast, the legal framework in many other countries is part of the civil code. Often it is necessary to create special domestic securitisation vehicles (e.g., the Fonds Commun de Creances in France, the Societe d'investissement en Creances in Belgium, and Fondo de Titulacion de Activos in Spain). Moreover, even among OECD countries, considerable differences still exist regarding reporting regulations, legal fundamentals regarding trusts, and rules on withholding tax, income tax treatment of issuing vehicles, stamp duty, and treatment of capital gains. Differences in accounting standards, which are not harmonised across all countries, are also important. While use of "shareholder value" is becoming more widespread, differences in the area of corporate governance remain, and as noted before, bankruptcy laws in some countries require borrowers to be notified that their loans have been transferred from the originator. Taken as a whole, the factors mentioned above add to the costs of structuring transactions and likely account for many of the disparities in ABS/MBS markets across countries. It seems fairly clear, for example, that in the case of consumer receivables or other securities backed by large volumes of loans with relatively small balances a requirement to directly notify (in advance) each obligor that his/her loan had been transferred would be prohibitively expensive and time consuming. It follows that countries in which sizeable volumes of such securities have been issued either do not require notification at all or allow a public notice to suffice.

The factors discussed above affect an originator's incentive to sponsor ABS/MBS transactions. But there are still other requirements that determine whether an originator will be able to complete a securitisation. In a few instances, governments have put the basic securitisation infrastructure in place, but prospective ABS issuers have faced another hurdle: off-balance sheet securitisations are data-intensive. Sufficient historical data on the loan/loss performance of the underlying assets must be made available to credit rating agencies to enable them to quantify (on an actuarial basis) appropriate levels of credit enhancement. Moreover, there must be historical performance data on the assets during a time of financial stress, such as a recession or sustained period of falling incomes. Finally, the performance data must be generated using internationally accepted accounting standards. This requirement can be a binding constraint in the case of attempts to securitise distressed assets, where detailed reporting is generally required.

Finally, it is also worth recalling that one of the factors that contributed to the rapid growth in securitisation in the United States was the shift by banks in the mid- to late-1980s away from traditional lending to fee-based sources of income. Securitisation was a key component of this strategy. Until recently, banks in other jurisdictions have not been as aggressive in securitising assets. Increased competition has begun to raise the stakes, however, and issuance of ABS by continental European banks and by banks in Asia has picked up.

#### V. Concluding remarks

To summarise, considerable regional variation in off-balance sheet

securitisation still exists, but the general trend appears to be towards increased use of these techniques. More and more governments have established guidelines covering the transfer of assets off-balance sheet and the perfection of rights to those assets. Furthermore, lenders and corporations have come to see the benefits of using securitisation to lower overall funding costs or to rebalance their portfolios. However, not all trends in the ABS market have been positive. One "negative" development that is attracting some attention in the ABS market is the recent increase in the number of ratings downgrades. Downgrades of ABS are not unprecedented, but historically they have been confined to lower-rated tranches that are supported by limited guarantees tied to the issuer's unsecured debt rating, or they have reflected a deterioration in the performance of third parties, such as insurers and, in the case of emerging market securities, sovereigns. For example, in the early 1990s, a number of ABS backed by credit cards and auto loans were downgraded below triple-A after several Japanese and Swiss banks lost their triple-A ratings. In 1998, a number of securities lost triple-A ratings for more fundamental reasons - servicer bankruptcies and servicers seeking to transfer operations. More recently, there have been a number of downgrades related to a deterioration in the performance of the collateral, which from a historical perspective is unusual. Moreover, collateral performance was a causative factor behind 45 downgrades in 1998. Through the first half of 1999, a deterioration in the performance of collateral pools resulted in 64 downgrades." The credit problems in emerging markets have been a major factor, prompting downgrades on numerous CBOs and CLOs. Abstracting from the problems of particular asset categories, what makes the recent downgrades even more surprising is the fact that many have not been limited to subordinated tranches. The incidence of downgrades of triple-A classes remains rare, however, and some transactions have received upgrades.

Going forward, analysts expect the recent credit problems to settle down. Global issuance of ABS is likely to continue to expand, although the rate of introduction of new asset classes will probably slow. issuers are expected to make greater use of derivatives to accomplish transactions, and in some cases, derivatives may take the place of traditional offerings.

Chart 1.

Table 1.

Chart 2.

Table 2.

\* This article has been prepared by Senior Economist Stephen Lumpkin, Financial Affairs Division.

#### Notes

1 .In market vernacular, a distinction is made between securities backed by residential or commercial mortgages - mortgage-backed security (MBS) or commercial mortgage-backed security (CMBS) - and those backed by other loans or receivables - asset-backed securities (ABS). Here, the term asset-backed securities is used broadly to refer to all securitised assets, whether backed by business and consumer loans, lease receivables, credit card receivables, auto or boat loans, or mortgages.

2. In some respects, the swap market appears to be substituting more and more for traditional securitisations, given the ease of execution of swaps and their greater liquidity.

3. German Pfandbriefe, bonds backed by mortgages (and more recently by

public-sector debt), have existed for 200 years.

4. In most countries with developed securities markets, mortgages and other real estate loans account for a sizeable share of the total volume of ABS issuance, but a wide variety of other assets have been securitised as well, including instalment loans, credit card receivables, automobile receivables, leases, commercial and industrial loans, and others.

5. See *Securitisation: An International Perspective*, OECD 1995.

6. See, for example, *ABS Market Comment*, Goldman, Sachs & Co. (28 June 1999).

7. For example, the servicing function is often carried out by the sponsor or an affiliate of the sponsor, but may be performed by a third party. Trustees generally are commercial banks that are not affiliated with the originator/sponsor or with other parties to the transaction.

8. In some cases, the originator continues to service the assets, for which it is paid a fee from the SPV

9. Note that there are alternative methods of transferring an economic interest in the assets to the SPV that do not entail a direct sale.

10. Under United States federal law, "qualified financial contracts" of United States banking institutions are recognised as true sales by the Federal Deposit Insurance Corporation and thus are exempted from receivership proceedings. However, the same rules do not apply to non-banks or to United States branches of foreign banks, which must adhere to requirements (under applicable state law) for true sales of the underlying assets.

11. Under the terms of some contracts, borrowers who also hold deposits in a financial institution may be able to reduce (set-off) the amount of their loan repayments by the amount of any lost deposits brought about by the insolvency of the bank.

12. For a more complete discussion of risk transfer by alternative methods, see David Hudd, Peter Voisey, and Brian Carne "Loan securitisation and risk transfer", *ISR Legal guide to securitisation*, (September 1998), pp. I I - 18.

13. Under normal circumstances, principal payments on the underlying loans would be reinvested by the SPV rather than paid out to investors. However, if the credit quality of the pool deteriorates significantly, these reinvestments cease and the SPV passes through to investors their pro rata share of principal payments as they are received. Under fast payout provisions, the sponsoring bank's share of principal payments on the underlying loans are contractually subordinated to the investors.

14. In the past couple of years, a number of banks with severe asset-quality problems have used these transactions to securitise investment-grade assets and move them off their balance sheets. Many of these transactions were loss-making arrangements in the sense that the banks had to pay spreads on the securities that exceeded what they were receiving on the underlying loans. Still, by removing assets from their balance sheets, the banks succeeded in freeing up capital. Clearly, in an environment characterised by high funding costs, declining asset values, and softening economies, this is not a viable long-term strategy.

15. Banks are also able to lower their measured risk-weighted assets without necessarily lowering their overall economic risks through the so-called process of "regulatory capital arbitrage". Regulatory capital arbitrage often entails channelling risk positions through SPVs created

solely for the purpose of unbundling and repackaging selected risks in ways that receive favourable treatment under applicable accounting standards; under corporate, tax, bankruptcy, and securities laws; and under banking statutes and regulations. For a more detailed discussion of regulatory capital arbitrage, see David Jones, "Regulatory Capital Arbitrage: The US Experience", unpublished mimeograph.

16. See, for example, "Product Snapshot: Commercial Loan Securitisation - The Giant Awakes", Goldman, Sachs and Co. Fixed Income Research, Asset-Backed Securities, 7 Oct., 1997.

17. Emerging market debt is often used as collateral for CBOs because such instruments are often high-yield, non-investment grade securities. Moreover, issuance of emerging market debt has grown tremendously in recent years, so the collateral has been readily available.

18. It should be noted that regulators in certain countries (e.g., the United Kingdom) have made exceptions for asset-backed securities if held in a trading account. The Federal Reserve also recently reduced the risk weighting for student loan ABS issued by Sallie Mae owing to the contingent and indirect government guarantee.

19. For a more detailed description, see the discussion in "Hedging disaster in the Magic Kingdom", International Securitisation Report, Issue 39 Only/August 1999), pp. 24-25.

20. See "Future-Flow Securitization Rating Methodology", Duff & Phelps Credit Co. (March 1999).

21. See, for example, Duff & Phelps Credit Rating Co., Global Market Insights, June 1997.

22. Of course, there are still limits to investors' appetites for various types of ABS. Many recent converts to ABS investments are establishing internal targets with regard to industry concentrations, asset categories, and regions.

23. These initiatives are well known and included the Housing and Urban Development Act of 1968 (which created the Government National Mortgage Association, or Ginnie Mae and re

constituted the Federal National Mortgage Association, now Fannie Mae, as a federally chartered, privately owned corporation); the Emergency Home Finance Act of 1970 (which created the Federal Home Loan Mortgage Corporation, now Freddie Mac); the Secondary Mortgage Market Enhancement Act of 1984; the Tax Reform Act of 1986 (which created the real estate mortgage investment conduit, or REMIC); the Financial Institutions Reform, Recovery, and Enforcement Act of 1989 (which reconstituted Freddie Mac as a federally chartered, privately owned corporation and provided "true sale" status for bank qualified financial contracts); and the adoption of Rule 3a-7 by the Securities and Exchange Commission in 1992 (which exempted from regulation as investment companies structured financings that meet the rule's conditions and was introduced for the express purpose of facilitating the development of the asset-backed securities market).

24. See "ABS Market Comment", Goldman Sachs (12 July, 1999).

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**Descriptors:** Securitization; Asset backed securities; Securities markets; Securities prices; Studies; Trends; International finance  
**Classification Codes:** 3400 (CN=Investment analysis); 9180 (CN=International); 9130 (CN=Experimental/Theoretical)  
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106/9/21 (Item 21 from file: 15)

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The name shame

Goldgaber, Arthur

Financial World v166n4 pp: 117-119

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**Abstract:**

An investor cannot judge a bond fund's strategy and risk level by its title. It turns out that only 65% of a fund's holdings needs to reflect its name, leaving 35% up to the manager's discretion, according to SEC regulations. Newsletter publisher Richard Lehman explains that there are a number of high-risk elements that can add volatility and risk to a bond portfolio in addition to the length of the portfolio's maturity. They include buying on margin and investing in fancy derivatives. Alliance North American Government Income Trust B bond sure sounded like the typical conservative, reliable widows-and-orphans fixed-income offering, but in 1994 its total assets plunged 31%. As it turned out, the fund had fully 21% of its assets in Argentine bonds. A total of 65% of the fund's assets were in North American securities, and the prospectus states that up to 25% of the fund can be invested in Argentine bonds. Another bond fund with an extremely safe-sounding name that includes securities with potentially high risk is Putnam Federal Income A fund.

**Text:**

Headnote:

Just because a bond fund doesn't sound risky doesn't mean it isn't.

(Table Omitted)

Captioned as: DON'T JUDGE A BOOK...

Alliance North American Government Income Trust B bond fund sure does sound like your typical conservative, reliable widowsand-orphans fixed-income offering. So when the fund's total assets plunged 31 in 1994, investors were stunned.

That was the year of the bond crash, when the Federal Reserve hiked rates seven times and the Mexican peso collapsed. Still, Alliance wound up being the year's worst-performing bond fund. Yikes. How was that possible? As it turned out, the fund had fully 21 of its assets in Argentine bonds, which accounted for much of the decline. Huh? Does Alliance North American need a geography lesson?

No surprise, then, that angry shareholders took Alliance Capital Management to court last year, even though the \$1.3 billion-in-assets fund's total return was 30 in 1995 and 17.5 in 1996. An Alliance spokesperson defended the fund's action by explaining that 65 of the fund's assets are invested in North American securities and the prospectus states that up to 25 of the fund can be invested in Argentine bonds.

The moral: An investor can't judge a bond fund's strategy and risk level by its title. It turns out that only 65 of a fund's holdings needs to reflect its name, leaving 35 up to the manager's discretion, according to Securities and Exchange Commission regulations. "What's in the other 35?" may be the most important question for risk-averse investors who want safe, reliable income without risking principal.

Unfortunately, the prospectus may also be vague, and not detail every security a manager may purchase, says Richard Lehmann, publisher of Income Securities Advisor. "Bond fund managers want maximum discretion in the range of investment options," Lehmann says, but "investors should have the ability to say, 'No, I don't want foreign bonds, derivatives or a leveraged situation.'"

Lehmann explains that there are a number of high-risk elements that can add volatility and risk to a bond portfolio in addition to the length of the portfolio's maturity. They include buying on margin and investing in fancy derivatives. To find the risky securities, Lehmann advises scrutinizing the fund's entire portfolio as listed in its annual or semiannual report to shareholders. Or as Morningstar analyst Kevin McDevitt warns, "The bond fund's name is hardly even the starting point. You have to dig deeper and take [the name] with a grain of salt." Take Alliance. Whatever happens in the pending litigation, the case does teach important lessons in hidden bond fund risks. The company's first prospectus in 1992 stated that managers would not invest more than 10 of fund assets in any one country outside North America. But in 1993, the prospectus added "except Argentina," where managers could devote up to 25 of assets.

In its defense, the fund claimed, correctly, that SEC regulations permit such changes—even without shareholder approval—as long as it doesn't alter the fund's fundamental investment policy. So investors have to read the prospectus yearly to ensure that they still agree with the fund's policies.

Another challenge is trying to spot leverage in the fund's prospectus or portfolio, says Morningstar analyst

Todd Porter. For example, the Alliance North American Government Income prospectus stated that the fund could invest up to 25 of total **assets** in Argentine bonds, which includes the amount they borrow to **purchase** Argentine bonds. Subtract the \$387 million in loans the fund took out to buy Argentine bonds from the balance sheet, says Porter, and the total percentage of Argentine debt securities climbs closer to 30 of total net assets (the amount that shareholders have invested).

Another bond fund with an extremely safe-sounding name that includes securities with potentially high risk and volatility is Putnam Federal Income A fund. Indeed, its prospectus states that it "normally invests at least 65 of assets in U.S. government securities, including Treasury

obligations and agency mortgage-backed securities."

However, Morningstar analyst Bill Whitt says the fund's other holdings include a wide range of securities: 10 of the portfolio is in sovereign foreign debt securities and about 25 altogether in corporate **debt** and collateralized mortgage **obligations** (CMOs). Most of these CMOs have the acronym FRN, or fixed rate note, after them.

Kenneth Taubes, Putnam Federal Income A's co-manager, stresses that the fund's prospectus "in very clear and plain language explains every type of asset class that we can invest in, including corporate, investment-grade, international securities and asset-based securities." He adds that every CMO the fund invests in is "investmentgrade and is structured in a way that provides stability of cash flow, and there is no leverage in any of the CMOs we own."

CMOs are mortgage-backed bonds that separate mortgage pools into different maturity classes, called tranches. This is accomplished by applying income (payments and prepayments of principal and interest) from mortgages in the pool in the order that the CMOs pay out. Tranches pay different **rates** of interest and have different maturities.

The FRN designation can also refer to **floating rate notes**, which are pegged to a variety of indexes, and it can add another wrinkle. FRNs can be hedged for interest **rate** movements or used to speculate outright. And the manager can receive leverage of five to 10 times the CMO's income stream.

Can the investor know how FRNs will behave in various **interest** rate scenarios? Whitt says that sometimes details about the individual **security** is provided in the reports to shareholders. Often, however, an investor may have to call the manager for a more complete explanation and to ascertain if the instrument is being used as a hedge. Good luck trying to get a manager on the phone.

Then what does the word "government" mean in a bond fund's title? You might think it means that 65 of the fund's assets is invested in U.S. Treasuries. Wright says, however, that the bond fund industry includes mortgage securities from the Federal Home Loan Mortgage Corp., also known as Freddie Mac, and the Federal National Mortgage Association (Fannie Mae) as well as Treasury securities.

For example, 79 of the assets in the Nationwide U.S. Government Income fund is invested in CMOs, issued mostly by Freddie Mac and Fannie Mae. "It's probably unthinkable that the U.S. government would permit these securities to go down the tubes," says Morningstar analyst Mark Wright. But they are not guaranteed. They just have an implicit guarantee that has never been tested with an actual default. Nationwide U.S. Government Income's manager, Wayne Frisbee,

argues "the securities are not guaranteed by the U.S. Treasury, but there are not too many agency-issued securities that are, and it's certainly considered U.S. Government agency paper." He says that he only purchases conservatively structured CMO tranches that act like bonds. So the net effect on the portfolio is "that it acts like a bond portfolio because it moves with the market, but also gives the additional spread that is not available in the Treasury market."

Says Frisbee: "I also don't feel I'm misleading anyone," because the fund's name is Government Income and not Government Bond Fund.

How can investors find risky elements in a bond fund before investing?

Investors should first realize that, as a group, U.S. taxable bond funds had an average total return of 5.7 last year, 17.2 percentage points less than the S&P 500 index. So it's even more crucial than with equity funds to find funds with the lowest fees. Managers of bond funds with loads or high fees often resort to riskier strategies to make up for the fees, Wright says.

In examining a portfolio, Wright says an investor can spot options, futures and derivatives. The options and futures are usually listed at the end of the portfolio holdings and sometimes listed in the notes to the financial statement.

Mortgage derivatives can usually be found in the footnotes to securities, Wright says, though they won't be labeled "exotic." But a tip-off would be an explanation that says. "The bond's coupon adjusts inversely with interest rates, which is an inverse floater."

Also, a mortgage bond with the footnote "valued by management" is probably a derivative, since most mortgagebacked security derivatives are illiquid and don't trade.

Sometimes a portfolio will also list stripped mortgage-backed securities as a separate category.

"All stripped mortgage-backed securities are exotic," Wright says. A stripped mortgage **security** is a bond that is broken into two securities: One that pays **interest** and another that pays principal.

And you thought your government bond fund was a simple, conservative investment.

## **THIS IS THE FULL-TEXT.**

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### **Company Names:**

**Alliance North American Government Income Trust**

**Putnam Federal Income**

**Nationwide US Government Income**

**Geographic Names: US**

**Descriptors: Mutual funds; Bond portfolios; Investment policy; Names; Manycompanies**

**Classification Codes: 9190 (CN=United States); 8130 (CN=Investment services); 3400 (CN=Investment analysis)**

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**106/9/22 (Item 22 from file: 148)**

**09399523 Supplier Number: 19222460 (THIS IS THE FULL TEXT )**

**The name shame: just because a bond fund doesn't sound risky doesn't mean it isn't.**

**Goldgaber, Arthur**

**Financial World , v166 , n4 , p117(3)**

**April 15 , 1997**

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**Word Count: 1550   Line Count: 00141**

**Abstract: Bond funds that sound like conservative, low-risk investments may not necessarily be. The best example is Alliance North American Government Income Trust B bond fund, which plummeted in 1994. Other bond funds are also discussed.**

**Text:**

Just because a bond fund doesn't sound risky doesn't mean it isn't.

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How was that possible? As it turned out, the fund had fully 21% of its assets in Argentine bonds, which accounted for much of the decline. Huh? Does Alliance North American need a geography lesson?

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The moral: An investor can't judge a bond fund's strategy and risk level by its title. It turns out that only 65% of a fund's holdings needs to reflect its name, leaving 35% up to the manager's discretion, according to Securities and Exchange Commission regulations. "What's in the other 35%?" may be the most important question for risk-averse investors who want safe, reliable income without risking principal.

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RELATED ARTICLE: DON'T JUDGE A BOOK...

FUND	ANNUALIZED TOTAL RETURN(*)		
	3-YEAR	1-YEAR	YIELD
ALLIANCE NORTH AM GOVT INC B	3.2%	17.5%	11.3%
DAVIS CONVERTIBLE SECS A	15.5	31.4	3.1
GALAXY INTERM GOVT INC TRUST	NA	1.9	5.9
LOOMIS SAYLES BOND INSTL	10.3	8.0	6.8
NATIONWIDE U.S. GOVT INCOME	5.4	3.0	5.8
PUTNAM FEDERAL INCOME A	5.2	1.7	6.0
VAN KAMPEN AM CAP GLOB GOVT B	1.4	-1.3	6.1

FUND	ASSETS (*) (MIL.)	EXPENSE RATIO
ALLIANCE NORTH AM GOVT INC B	\$1,322	3.30%
DAVIS CONVERTIBLE SECS A	45	1.14
GALAXY INTERM GOVT INC TRUST	210	0.73
LOOMIS SAYLES BOND INSTL	587	0.79
NATIONWIDE U.S. GOVT INCOME	39	1.08
PUTNAM FEDERAL INCOME A	367	1.12
VAN KAMPEN AM CAP GLOB GOVT B	81	2.20

FUND	PORTFOLIO COMMENTS
ALLIANCE NORTH AM GOVT INC B	21% Argentine bonds
DAVIS CONVERTIBLE SECS A	49% common stocks
GALAXY INTERM GOVT INC TRUST	34% corporate debt
LOOMIS SAYLES BOND INSTL	9.5% emerging market debt
NATIONWIDE U.S. GOVT INCOME	79% CMOs

PUTNAM FEDERAL INCOME A 15% corp. debt, 10% foreign debt  
VAN KAMPEN AM CAP GLOB GOVT B 90% U.S. Treasuries  
(\*) As of Jan. 31 NA: Not applicable. Source: Morningstar;  
FinancialWorld.

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**Special Features:** illustration; table

**Industry Codes/Names:** BANK Banking, Finance and Accounting; BUSN Any type of business

**Descriptors:** Bond funds--Evaluation

**Product/Industry Names:** E565100 (Private Bonds & Notes)

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**106/9/23 (Item 23 from file: 15)**

**01030125 96-79518**

**A glossary of derivatives market terms**

**Anonymous**

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### **Abstract:**

A glossary of key derivatives market terms is presented.

### **Text:**

A

Absolute: Not relative to a reference rate or price.

/rate: A swap rate expressed as a percentage return, rather than as a premium/discount to a reference rate such as Libor.

/swap yield: The fixed-rate of an interest rate swap expressed as a percentage rate.

Accordion swap: See concertina swap.

Accreting: Literally 'growing', the notional principal amount of accreting instruments grows over their life according to a pre-set schedule or pre-defined index. Accreting instruments are useful for hedging liabilities expected to grow predictably, for example to hedge the step-by-step drawdown of a syndicated loan agreement. Hence one of its many other names, the drawdown swap. It is also known as the step-up swap. Accretion has been applied to caps, collars, floors and swaptions.



Accrual: The process whereby interest accumulates between payment or reset dates.

/swap: An interest rate swap under which a counterparty pays a vanilla floating reference rate, usually three- or six-month Libor, and receives Libor plus a significant spread. Interest payments to this counterparty will only accrue if rates stay within a certain range dictated by pre-set upper and lower boundaries. Libor is usually tested relative to the range daily, to give an averaging effect. A more aggressive variant, the binary (coupon) accrual swap, is also available. The difference is the same as the difference between corridor or range options and binary range options: in the binary version, any breach of the range boundaries means zero payment under the structure while in the standard version, boundary breaches only cancel that day's payment. Buying an accrual swap is physically equivalent to entering into a vanilla interest rate swap and writing a series of daily caps. More accurately though, the counterparty has bought a digital option with a payout equal to Libor plus the spread struck at the lower boundary value, sold another digital option with a payout equal to Libor plus the margin struck at the upper boundary level, sold another digital option with a payoff equal to the upper boundary rate minus the lower boundary rate with the Strike set at the upper boundary, bought a conventional cap on Libor struck at the lower boundary and sold a conventional Libor cap struck at the upper boundary. Accrual swaps are a way of extracting value from FRA curves whose predictions of future **rates** the user does not believe. Also known as a fairway swap or range (Libor) swap.

**/note:** See range-floating-rate notes.

Adjustable strike options: Options whose strike price varies according to a predetermined underlying index. The commonest example is the adjustable strike cap (ASC). This is a cap whose strike price increases if the underlying (usually Libor) increases by more than a certain trigger amount in any one reset period. While rates stay below the trigger, the adjustable strike cap behaves like a vanilla cap. If rates rise faster than the trigger, then the amount of cap protection decreases. There is usually an absolute maximum strike rate. The holder of an adjustable strike cap is long a conventional cap and has sold a series of digital caps (or another adjustable strike cap with a maximum strike where the quarterly strike refers to the last Libor setting).

In a positive yield curve environment, where the market is predicting rises near the trigger rate, the higher the possibility that the trigger will be breached and so the higher the value of this sold option. Hence the ASC is cheaper than a conventional cap. If the yield curve is negative, the ASC provides much less of a reduction in costs. The ASC can be made even less expensive by lowering the trigger, raising the strike adjustment that follows a trigger breach and by raising the maximum strike. Adjustable strike floors are also available. Also known as ratchet or momentum options/caps/floors.

Aggregation: The netting of positive and negative values of swaps affected by early termination allowed by some swap master agreements.

All-or-nothing option: A type of digital option which pays out a fixed amount if the underlying is above (call) or below (put) the strike on maturity.

Alternative currency option: An option on an asset denominated in a currency other than that in which the underlying is denominated. Sometimes also used as a term for dual currency options. See also currency protected option.

Alternative option: See rainbow option.

American-style: An American-style option can be exercised at any point during its life. In general, this makes such options more expensive than European-style options though this is most pronounced where the option's exercise results in the purchase of a position with better returns than the one liquidated to fund the purchase.

Amortizing: Used of derivatives whose notional principal decreases over the life of the instrument in accordance either with a pre-set pattern or with an index of interest rates or mortgage prepayment rates. Instruments that have been structured in this way include caps, collars, floors, swaps and swaptions.

Analytic approximation models: The third main class of options pricing models. Analytic approximation involves estimating the premium for early exercise using a numerical technique and then adding this premium to the price of a European option obtained from an analytical model. The best known example of this type of model is the Barone-Adesi-Whaley model.

Analytical model: One of the three main classes of option pricing model (along with analytic approximation and numerical models) which like the Black-Scholes model and its later variants find an explicit solution to the problem of pricing a particular option or options using mathematical functions. Black-Scholes and others, for example, specify and solve a stochastic differential equation. While these models are simple, they cannot handle the early exercise feature of American-style options. This is because the decision to exercise before expiration depends on the behaviour of the price of the underlying security throughout the life of the option and cannot be reduced to a single parameter. They are also increasingly inaccurate as the term of the option lengthens because they cannot easily take into account variations in short-term interest rates or the time-dependence of volatility. The analytical solutions on which these models are based are also known as closed-form solutions and so the models are known as closed-form option pricing models.

Annuity swap: A type of amortizing swap in which an irregular payment stream is exchanged for a regular payment stream of the same present value. This is achieved by adjusting the swap's notional principal over its life.

Arbitrage: Instruments that have identical characteristics and so are perfect substitutes should trade at the same price. If they do not, a risk-free profit can be generated by simultaneously selling the higher-priced asset and buying the lower-priced asset. Arbitrage is the identification and exploitation of such price anomalies. For example, US government bonds are routinely stripped into their component parts, an interest-only strip and a principal-only strip. Theoretically, the price of the bond and the price of the two components combined should be identical. However supply and demand for the differing characteristics of the three instruments creates situations in which arbitrageurs can make money either by stripping bonds and selling the components or by recombining the components and selling them as complete bonds.

More generally the term arbitrage is used to mean profiting from differences in price between similar securities or packages of instruments or from trades which are undertaken when prices have moved from some historical or theoretical path or relationship in the expectation of a move back to the statistical norm.

Arbitrage-free model: A description of option pricing models that do not allow arbitrage of the underlying variable. Most commonly applied to models

developed by Cox-Ingersoll-Ross, Ho-Lee, Heath-Jarrow-Morton and Hull-White. These were originally developed to price interest rate options and incorporate constraints on the movement of interest rates designed to avoid arbitrage possibilities caused by yield curve movements. The models differ essentially only in their assumptions about spot rate movements.

Arch: Acronym for autoregressive conditional heteroscedasticity, an econometric technique developed by Professor Robert Engle in 1982 to model random variables. It is an estimation procedure that allows a covariance matrix to change with time. It assumes that variance is stochastic and is a function of the variance of the previous time period and the absolute level of the underlying variable. Specifically, the conditional variance of a time series is allowed to depend on lagged squared residuals in an autoregressive manner. This means that during periods in which there are large unexpected shocks to the variable, its estimated variance will increase, and during periods of relative stability, its estimated variance will decrease.

Arch has found much favour in the options world as the basis for models which do not assume that volatility is constant. Most of the older option pricing models do despite the evidence to the contrary. Instead, Arch-based models assume that volatility follows clear patterns; that today's depends on yesterday's and so historical volatility is a clue to future volatility and in particular that volatility should regress back to its long-term average. Several other variations exist, including Garch, AGarch, EGarch and QGarch.

Arithmetic Brownian motion: See Wiener process.

Arrears Rate Reset Swap: See Libor in arrears swap.

Asian option: See average rate option.

Asset swap: The application of an interest rate swap to the cash flows from an asset instead of a liability. Most commonly used when mispriced credit risk or other arbitrage opportunities between the swap and bond markets allow swap houses to take underpriced fixed-rate securities and create synthetic **floating-rate notes** paying a significant premium over Libor.

Assignment: Specifically in the option market, notice to an option writer that an option has been exercised. In the swap market, assignment is the transfer of a swap obligation to another counterparty.

Asymmetric payoff: The skewed profit pattern associated with options that gives profit sharing on the upside (appreciation for a call, depreciation for a put) while limiting liability on the downside. Contrast with the symmetrical payoff associated with forwards and futures.

As-you-like option: See chooser option.

Atlantic-style: See Bermudan-style.

At-the-money: The point at which an option's strike price and the price of the underlying asset are the same. Options can either be struck-at-the-money forward, in which case the strike price of the option is equal to the current implied forward price of the underlying or they can be struck at-the-money spot, in which case the strike is equal to the prevailing spot price of the underlying. For example, an interest rate cap struck at the current Libor level is at-the-money spot; one struck at the current swap rate for the period of the cap (or the FRA rate for a caplet) is at-the-money forward. Since derivatives are priced off the implied forward curve, there can be significant differences in the price of options

on the same underlying struck in these two different ways. Foreign exchange options are almost always struck so that the forward outright is equal to the strike price.

**Average rate option (ARO/AVRO)** Unlike a conventional option, which is (cash) settled by comparing the strike with the spot rate at expiration, an average rate option is cash settled by comparing the strike with the average of a predetermined series of spot rates observed over the option period. This hedges against price movements without locking in a fixed price or rate upfront. The average can be geometric or arithmetic and can begin at any point during the option period. The sampling process -- frequency and interval of underlying price observations -- can be tailored. Unlike a straight American- or European-style option, an average rate option can be settled more than once over its life. So for example, the holder of a one-year average rate option can choose to settle the option monthly versus the average price or rate of the underlying the previous month. Average rate options are cheaper than conventional options because the averaging process smooths out the underlying price movements thereby reducing volatility and hence the premium of the option. Typically the volatility of an average rate option is about half the volatility of a conventional option. Also known as an average price (APO) or Asian option. Averaging has been applied to a wide range of swaps and options particularly in the commodity and foreign exchange markets. For example, an FX hedger short US dollar/long Deutschmark booked at 1.5700 could buy an ARO US\$ call/DM put with a strike of 1.5700 and a fixing frequency of weekly every Friday for three months (12 fixings). With the forward at 1.5673 and 9.8% volatility the premium cost would be 1.15% US\$ as opposed to the 1.83% US\$ of a conventional European-style option. If the average were above 1.5700 on expiry, the underlying would be hedged at an effective rate of 1.58805. If the average were below 1.5700, then the underlying benefits below an average rate of 1.55195. It should be noted that AROs are cash-settled, not deliverable, so when hedging an underlying exposure, cash flows need to be converted in the underlying market on the relevant fixing dates. This ensures that the hedge instrument effectively offsets the aggregate FX rate of the cashflow conversions.

**Average strike (rate) option:** A type of moving or floating strike option in which the payoff is determined by comparing the underlying price at expiration with a strike computed as the average of a pre-determined series of spot rates over the lifetime of the option. The option is then exercised against the spot rate prevailing at expiry and can be either cash or physically settled. Since the option strike is uncertain and not determinable until exercise, this type of option is less expensive than a standard option. An example of its use would be a company with reasonably forecast random periodic receipts in a local currency followed by a single aggregate disbursement in a foreign currency. An average strike rate call on the foreign currency would preserve the relative foreign exchange rate between receipts and disbursements without forgoing the opportunity to gain on the disbursement.

B

**B-cap:** The B(ounded Q)-cap is the combination of a long Q-cap and a short Q-floor and provides the holder with a guaranteed maximum and minimum price for the underlying -- usually interest costs. It differs from a standard collar in that the actual amount of interest to be paid is collared, not the interest rate. See Q-cap.

**B-floor:** The bounded-Q floor is the combination of a long Q-floor position and a short Q-cap position and guarantees a minimum and maximum amount of interest income in return for a premium. The product suits risk-averse investors. See Q-floor.

Back contract: The most distant futures contract available.

Back end set swap: See Libor-in-arrears swap.

Back month: Any futures contract maturity beyond the nearest month expiry.

Back spread: (i) Any complex option position where more options are purchased than sold. (ii) A complex option position whose value will rise given a sharp movement up or down in the price of the underlying. (iii) Also used of spread positions in which the holder receives premium upfront.

Back-to-back swap: A swap agreement executed against an existing swap position that reverses the cash flows of the counterparties to it.

Backwardation: Primarily used of commodity markets, the situation in which futures prices are lower than spot prices to produce a negatively sloped forward curve. Originally used of a situation in which two sets of bid/offer prices on the same instrument are such that a third party can make a riskless profit by buying at one offer and selling at the other bid. See contango.

/swap: A commodity swap under which counterparties exchange a payment stream based on the nearby futures contract for one based on a more distant futures contract plus a spread. A commodity consumer could use such a swap to fix the spread differential between spot and forward prices to offset the costs they would incur if the spread relationship reversed, for example if absolute prices fell. Under this type of swap the consumer might pay the average daily price of the nearby futures contract and receives the six-month or 12-month contract plus a spread. If the curve flattens, the profit on the swap offsets the higher cost of hedging new forward purchases. See commodity swap, contango, contango swap.

Balloon option: An option whose notional principal increases if a pre-set trigger level is breached. For example, an equity investor might believe that the FTSE-100 will rise from 3000 to 3100, and then, if it breaches this resistance level, rise strongly again. He could buy a 3000 call with a trigger of 3100 and a multiple of two, meaning that if the index stays below 3100, the option behaves like a vanilla call but if it rises above 3100, then the option notional doubles. The balloon option is more expensive on the original notional principal than a vanilla option because it is the combination of two options -- a vanilla call struck at 3000 and a knock-in call struck at 3100. However, if the trigger is reached, the premium on the ballooned notional is cheaper. The greater the ballooning the higher the premium; the further the trigger level is out of the money, the cheaper the premium. See double-up swap.

Barone-Adesi-Whaley: An analytic approximation option pricing model devised in 1987 by Giovanni Barone-Adesi and Robert Whaley which incorporated a quadratic approximation approach into a particularly accurate model valuing American-style calls and puts on assets which pay continuous dividends.

Barrier: The price or rate at which certain types of derivative are activated or deactivated.

/option: A class of path-dependent options which extinguish or come alive when predetermined trigger points are reached. There are two types, (knock)-in options, which are activated when the pre-set barrier price is reached by the underlying and (knock)-out options, which are extinguished when the barrier price is reached. These fall into two further groups: standard knock-out and knock-in options and reverse knock-outs and knock-ins. Standard knock-outs/ins are activated or terminated as the option is moving out-of-the-money. So the barrier level would be below the

spot rate for a call (down-and-in/out calls) and above the spot rate for a put (up-and-in/out puts).

Reverse or in-the-money knock-outs/ins are activated or terminated as the option moves into the money. So, the barrier level would be above the spot rate for a call (up-and-in/out calls) and below the spot rate for a put (down-and-in/out puts). These are priced and behave very differently from standard barrier options. Other more exotic varieties are available which knock-in or out only after the barrier has been breached more than once and knock-out options can be structured to pay a pre-set fixed amount if they are knocked out (known as knock-out with rebate options.) Knock-out options are sometimes termed 'clever' or 'intelligent' because they disappear when they are no longer needed though this is not true in the case, for example, of a down-and-out put. Barrier options cost less than standard European options. How much less depends on how near the spot/forward level the extinguishing level is and on the maturity of the option. It will be much cheaper for an up-and-out call and down-and-out put if the trigger is set near spot/forward and vice versa for a down-and-in put and up-and-in call. This is easiest to understand in the context of standard barrier options. For these options, the premium reduction over vanilla options is a function of the trigger level. The more likely the option contract is to be knocked out or the less likely it is to be knocked-in, the greater the premium reduction, and vice versa. The price reduction is also highly sensitive to volatility: the higher volatility, the more likely the knock-out are to be reached and so the lower the price but the more likely knock-ins are to be activated so the higher the price.

Knock-outs are the commonest barrier options and were first developed for equity investors to reduce the price of collars on stock indices, calls on stock indices and also as a way of creating cheap and 'intelligent' positions such as the down-and-in call. They are now also used by corporate treasurers in both their foreign exchange hedging (see box) and in interest rate hedging.

For example, a German paper developer with DM100 million in three-year floating rate loans wants protection against interest rates rises. The company believes that rates will not rise much but needs catastrophe insurance. A straight cap at 8% -- the company's breakeven -- costs 250 bp. The company believes that the probability that German rates will hit 10% is very remote and that even if they rose that for it would only be for one cap period. They buy a three-year 8% cap with a knock-out at 10% for 110 bp. Combinations of barrier options and of barrier options with standard options can be used to create synthetic barrier or standard payoffs. For example, a position consisting of a down-and-out and down-and-in option with the same triggers has the same payoff as a standard option. Also known as trigger options. See also hybrid derivative for knock-in caps and floors and delta positive for delta behaviour.

/price: The price at which a barrier option is activated or deactivated. In a knock-out, the barrier price is called the outstrike; in a knock-in, the instrike.

Basis: (i) In futures markets, the price of the futures contract minus the spot price. That is, the difference between the forward price/yield and spot price/yield of futures (and also options). Basis is divided into carry basis and value or excess basis. Carry basis is the theoretical price of the future, minus the spot price of the underlying asset, and is equal to the net cost of carry, which may be positive or negative. Value or excess basis is the difference between the theoretical price of the future and its market price.

(ii) More generally, the relationship between prices/yields in related

markets

(iii) The basis upon which interest rates are calculated for bond and money market instruments.

/risk: The risk that prices in the underlying market are not exactly correlated with prices in the futures market. Consequently basis risk is used more generally of the risk that hedges composed of offsetting positions in the cash and derivatives markets become unbalanced.

/trading: Trading the spread between the futures (or more generally derivatives) markets and the underlying cash market.

/swap: A floating-floating interest rate swap under which floating payment streams referenced to different indices are swapped. Basis swaps arose from banks' needs to hedge the spread exposure between different short-rates, for example lending at prime and funding in Libor. Hence the commonest are US Prime for Libor, CP for Libor, T-bill for Libor or six-month Libor for six-month Libor reset monthly, and hence the alternative name for a basis swap, money market swap. They are also very common in commodity markets where they are used to hedge fluctuations on spreads between different products.

Basket: A selection of stocks, indices, commodities, currencies or interest rates which can either be traded as a unit themselves or which can be used as the underlying for a derivative product.

/options: Options whose payout is related to the cumulative performance of a basket of products. The main drawback of basket options when used as hedges is that they quickly become out of date if the underlying portfolio is highly variable. See currency basket option, interest rate basket option.

/warrant: A securitized basket option.

Bear spread: A position involving the simultaneous sale and purchase of options which benefits from falling prices in the underlying and in which the upside profit is limited and downside risk limited to the net premium paid upfront. A bear call spread is the purchase of a call option with a high exercise price and sale of another with a lower exercise price, both generally with the same expiration. A bear put spread is the purchase of a put option with a high exercise price and sale of another with a lower exercise price, both generally with the same expiration.

Bermudan-style: An option that can be exercised on a number of predetermined occasions. Also known as limited-exercise, quasi-American or Atlantic-style options (because they are half-way between American- and European-styles).

Beta (B): A measure of the sensitivity of an asset's return to an underlying factor or index. Most commonly used to refer to market beta where the underlying factor is the market. So, since the market's beta is one, returns on a security with a beta of one will move in line with the market; if beta is greater than one the security will exaggerate market returns; if it is less than one it will under-reflect market moves; and if beta is negative, security and market returns move in opposite directions.

Better of x assets option: See rainbow option.

Binary: In derivatives, applied to any structure whose fixed payout is either made ('on') or not made ('off') depending on the level of the underlying.

/option: See digital option.

/coupon accrual swap: See accrual swap.

/range **floater**: See range **floating rate note**.

Binomial: In derivatives applied to processes which model the underlying in terms of movements in one of only two possible directions at each point at which it is allowed to move.

/distribution: The most important discrete probability distribution options pricing. (Discrete probability distributions are those in which the underlying variable can only have certain discrete values. Most option pricing models assume continuous probability distributions such as lognormal and normal distributions.) To satisfy a binomial distribution a discrete random variable must satisfy four conditions: only two possible values can be taken on by the variable in a given time period (known as a binomial trial); for each of a succession of trials the probability of each of the two outcomes must be the same; each trial is identical; each trial is independent.

/option pricing model: An option pricing model which uses binomial trees to model the price of the underlying. This is the most common type of numerical model. The key to the binomial or lattice-based model is the division of the time to expiry of the option into discrete intervals or steps. At each step the model assumes that the key parameter, typically the price or yield of a security, evolves through time on a step-by-step basis moving either up or down by a fixed proportion in each interval. (A trinomial tree would allow three possible movements, and a multinomial model more than that). By working backward through the lattice from expiration, at which time the value of the option is known, options can be evaluated by discounting the terminal payoff through the tree: the value of the option is that which avoids an arbitrage profit. The advantage of binomial models is that they can deal with a range of different assets, options or market conditions. So, a lattice-based model gives rise to an algorithm rather than a closed formula for determining the option value. Such models are particularly useful for valuing American-style options and interest rate options. The best-known is the Cox-Ross-Rubenstein model.

/tree: The series of values generated by the binomial trial process. The binomial/lattice approach divides the time until option maturity into discrete intervals and presumes that during each of these intervals the price of the asset follows a binomial process moving from its initial value  $S$ , either up to value  $S_u$  with probability  $p$  or down to value  $S_d$  with probability  $1$  minus  $p$ . Representations of the resulting distribution resemble trees or lattices. The binomial process is usually specified as being path-independent -- that is, a move up followed by a move down results in the same price as a move down followed by a move up so that the branches recombine. This specification is an assumption that the underlying is normally distributed. Trees that do not incorporate this feature are said to be non-recombining, bushy or exploding. They are much more computationally demanding.

Black-Derman-Toy: A single-factor (in this case short-term interest rates) term structure option pricing model proposed by Fisher Black, Emanuel Derman and William Toy in 1990 which expanded on the Ho-Lee model by specifying a time-varying structure for volatility and incorporating it into a binomial tree of possible forward short rates.

Black-Scholes model: Developed by Fischer Black and Myron Scholes in 1973, this is the classic modern option pricing model and the first general equilibrium solution for the valuation of options. The model provides a no-arbitrage value for European-style call options on shares as a function



of the share price, the exercise price of the option, the risk-free interest rate and the variance of the stock price which is assumed to follow a lognormal distribution.

It does this by recognizing that stocks and calls on them can be combined to construct a risk-free portfolio and that options on equities can therefore be valued using a dynamic hedging argument. That is, the option writer can exactly offset his exposure to the underlying stock by continuously buying or selling it. The model shows that, by combining the underlying stock and a money market instrument, a riskless hedge (the delta hedge) can always be formed that exactly replicates the payoff of the option to be hedged. This means that a portfolio formed by the combination of the option and its riskless hedge must appreciate at the risk-free interest rate.

This riskless hedge method circumvents the difficulties of specifying investors' risk preference and allows the risk-free interest rate to be used in the valuation process rather than some other discount rate that reflects the appropriate risk level. For any time period, the value of such a portfolio can be computed as its value at the end of the period discounted back one period at the risk-free rate. Because the price of an option is a deterministic function of the price of the underlying asset at that time, given that the distribution of asset prices is known for each time period (and in this model it is assumed to be lognormal), then the initial value of the option can be deduced by working backwards in time.

The model's great achievement is completeness: it provides a method for hedging options with the underlying asset, which allows for arbitrage pricing and hedging. Its drawbacks are that it assumes no dividends, no taxes or transaction costs, constant short-term interest rates, no penalties for short sales, that volatility and interest rates are constant, that the market operates continuously and that stock price distribution is lognormal. The generalizations of Black-Scholes address these problems, while extensions to it apply it in a modified form to options on futures, options on currencies and to exotic options.

The basic model has problems pricing short-dated options because volatility is not time-homogenous and long-dated options because it fails to take into account mean reversion. It systematically undervalues near-maturity options, deeply out-of-the-money options, options on low volatility stocks and overvalues long-term options, deeply in-the-money options and options on high volatility stocks. All these problems are due to the model's assumption of the uniformity of variance across time. Other types of models address these problems. See binomial model, CEV model.

Blended interest rate swap: A swap in which the swap buyer pays a mixture of fixed- and floating-rate interest on the notional principal. The fixed- and floating rate levels are set at the outset of the swap, while the percentage of the notional principal to which the floating rate is applied depends on the level of interest rates. For example, one counterparty might receive dollar Libor and pay an off-market low fixed rate fixed for a two-year protection period. After that period, he pays a blended rate of that fixed rate plus dollar Libor, plus or minus a spread. The percentage of Libor in the blend increases with Libor according to a predetermined table of trigger levels. The counterparty pays floating on a greater proportion of the notional principal if Libor rises. Also known as an incremental floating swap, self regulating swap.

These swaps can also be tailored so that it is the fixed rate portion of the swap that increases with Libor -- see under incremental fixed swap. Also see index amortizing swap, index principal swap, Libor regulating swap, semi-fixed swap.

Bond index: A measure of the returns from a standard or customized basket of bonds.

/note: A note whose coupon or principal payments are tied to a standard or tailored bond index. These notes are often cross-credit structures. For example, a double-AA issuer might issue a bond linked to a basket of junk bonds, thus allowing an investor not otherwise allowed to invest in high yield markets to gain exposure to them. The effect of notes being up- or downgraded out of the underlying index should be studied carefully before entering into this type of investment as this can cause the index to behave differently to a real basket of the underlying bonds.

/swap: A type of interest rate basis swap in which the returns from a bond market or segment of a bond market are exchanged for a money market reference rate plus or minus a spread. For example, the returns from the JP Morgan world government bond index might be swapped for three-month Libor minus 100 basis points. In one form, bond index swaps are a type of credit derivative. In such cases the returns from one portfolio or index of bonds are swapped for the returns from another portfolio or index of bonds of a different credit quality. For example, the yields on the triple-A subset of the Salomon Brothers Eurodollar bond index could be paid in exchange for the (higher) yields on the single-A sub-index with the single-A receiver taking on the credit risk that he will receive the debt of any defaulting issuer within that sub-index.

Boundary binary option: The combination of a range binary option with a limit binary option. The holder of this position receives a fixed multiple of the premium paid either if the underlying (usually an exchange rate) stays inside a predetermined range or if it hits both extremes of the range. If it only hits one boundary the premium is lost and the structure is terminated. It takes the view that volatility will either be low, or high, but that no strong directional trend will emerge during the option's life.

Box (spread): The combination of a horizontal or calendar call spread and a calendar put spread with both spreads having the same expiration dates on their long and short positions. Such positions, commonest in the equity options market, are designed to capture the value in mispriced options while hedging against market risk or, alternatively, are used to tie up or free up cash. More generally the term box position refers to any offsetting spread positions; for example, the combination of bull and bear spreads.

Break forward: The sale of an off-market forward at a sufficient discount to the prevailing forward rate that the present value of the discount pays for an option to cancel the forward agreement at a predetermined strike price. Commonest in the FX markets. So, for example, with the standard forward contract rate at \$1.50, a dollar/sterling break forward with a contract rate of \$1.55 might permit the holder to break -- unwind -- the forward contract at a price of \$1.50. The payoff of this modified forward is that of a long call on sterling struck at \$1.50. If the dollar value of sterling rises, at expiration the hedger will obtain the then prevailing spot minus \$1.55. But if the value of sterling declines, the holder of the break forward will unwind the contract at \$1.50. The \$0.05 difference in rates for the standard forward contract versus the break forward represents the implicit premium paid for the option structure. Break forwards are typically executed so as to be zero premium and are a way of obtaining an option-like exposure without paying a premium. They were also accounting driven since, until early 1992, they could be accounted for as forwards (to which hedge accounting was applied so that gains or losses on the transaction could be deferred until the hedged transaction was recognized) while written options would have to be marked-to-market.

Brownian motion: The archetypal random motion observed by botanist Robert Brown in 1828 of pollen grains in water. Variants of this are used as the assumed path of securities prices in many financial models.

Bull spread: A position involving the simultaneous sale and purchase of options which benefits from rising prices in the underlying and in which the upside profit is capped and downside risk is limited to the net premium paid upfront. A bull call spread is the sale of a call option with a high exercise price and the purchase of one with a low exercise price, both generally with the same expiration. A bull put spread is the sale of a put option with a high exercise price and the purchase of one with a low exercise price, both generally with the same expiration. These can also be considered to be volatility trades since purchasers of call spreads will benefit if volatility rises and sellers of put spreads will benefit if it decreases.

/warrants: A warrant whose payoff mimics that of a bull call spread.

Butterfly (spread): A combination of four options. Used to describe a number of complex options positions, usually either the combination of a bull with a bear spread, or of an at-the-money straddle with an out-of-the-money strangle. So, a long butterfly might be long an option (put or call) at 40, short two at 60 and long one at 80. The characteristic shared by all the combinations is that the holder benefits from stable prices in the underlying while remaining protected against large movements in underlying prices.

Buying the basis: See cash-and-carry trade.

Buy-write: See covered call.

C

Calendar spread: The simultaneous sale of an option with a nearby expiry date and the purchase of an option with a later expiry date, both with the same exercise price. See diagonal, horizontal and vertical spreads.

Cancelable swap: See callable swap.

Callable: Terminatable early. Usually of bonds whose issuers can redeem them at pre-set dates.

/fixed floater: An FRN that pays a high floating rate for, say, the first year, at which point it is callable. If it is not called, the investor then receives a fixed rate coupon. The investor is effectively long an FRN and short a cap. The higher yield paid by the bonds reflects the premium received by the investor for the sale of the cap.

/swap: An interest rate swap in which either the fixed-rate payer or the fixed-rate receiver has the right to terminate the swap at one or more predetermined points during its life. These points are either defined in terms of time or in terms of points on the swap curve. So, for example, a treasurer paying fixed and receiving floating under a swap might like to cancel the swap if rates decline. A cancelable swap gives him the option to stop paying fixed (and so effectively to start paying floating) and he pays for this option by paying a fixed rate on the cancelable swap that is higher than prevailing vanilla swap rates. The counterparty with the right to terminate has effectively bought a swaption from the other counterparty which protects them against adverse moves in interest rates. In this case the treasurer has bought a receiver swaption. Most usually, a callable swap is one in which the fixed-rate payer has the right to terminate the swap, that is has bought the call. A swap in which the fixed-rate receiver has the right to terminate, that is has bought a put, is known as puttable.

Call option: An option that grants the holder the right but not the obligation to buy the underlying at a predetermined price. The buyer of a call is expressing a bullish view of the underlying and also implicitly, since he is long an option, believes either that volatility will rise or at least that it will not fall.

/monetization: Realizing the value of the call options embedded in some fixed-rate and many floating-rate bonds. It can be effected using forward swaps or selling call options on government bonds but is usually achieved by selling a swaption with a notional principal equal to the bond principal, an exercise date equal to the call date of the bond and with the underlying swap maturity equal to the maturity date of the bond.

Call spread: The simultaneous purchase and sale of equal numbers of call options with different strike prices but the same expiry date. See bear spread, bull spread.

Cancelable forward: See break forward.

Cap: An option strategy that sets a ceiling on the holder's interest rate exposure. A cap takes the form of an agreement under which, in exchange for a one-time upfront premium payment, the seller agrees to pay the buyer the difference (if positive) between the strike **rate** and the current **rate** at pre-set times over the life of the cap thus establishing a maximum interest **rate** for the holder. **Note:** a cap is not a continuous **rate** guarantee; claims can only be made on specified settlement dates. This makes it best suited to capping the interest **rate** on **floating-rate** loans that are reset periodically.

The buyer selects the maturity, interest rate strike level, reference floating rate, reset period and notional principal amount. A cap can be constructed either from a series of single-period calls on an interest rate index or from a series of puts on an interest futures contract or zero coupon bond. Caps are priced off the implied forward curve -- the relevant implied forwards being either the swap rate for the period of the cap or the FRA rate for a caplet. The simplest approach to pricing caps assumes that forward interest rates are lognormally distributed. Also known as a ceiling rate agreement.

/rate: The strike price or rate of a cap.

Capitalized option: See contingent premium option.

Caplet: The name given to one of the series of single-period options from which a cap is constructed. Also known as single period caps.

Capped: The maximum payout of capped options, warrants and the maximum floating-rate payable/receivable on a swap is capped if it is limited either by a pre-set cap level or, in the case of options, by automatic exercise of the option when the underlying reaches a pre-determined point. See exploding option.

/floating rate note: An FRN whose maximum coupon is capped. Investors have bought an FRN and sold a cap. They are therefore taking the view that **rates** will not rise above the cap strike, in turn a bet that rates will not move as high as the implied forward curve suggests. The benefits will be greatest when the cap is at its most expensive -- that is, when volatility is high and the curve is steeply positive. The notes have non-standard duration and volatility risk characteristics.

Capped, floored, capped and floored and collared FRNs are generally bets against the high predicted forward rates occurring. That is, they contain views that run contrary to forward rate predictions contained in the implied forward curve. It is therefore inappropriate to analyze these structures using forward analysis.

Caption: The option to buy or sell a cap.

Carry: The difference between the benefits and costs of maintaining a position in the cash market.

Cash-and-carry arbitrage: A basis trade involving a long cash position exactly offset by a short futures position. The holder of the position believes that the futures contract is expensive. He shorts the future, borrows at money market rates to finance a long position in the underlying and either delivers the asset into the futures contract or waits for a narrowing of the basis and closes out the positions, in which case he effectively collects the yield on a synthetic money market instrument. Also called buying the basis. This arbitrage and its opposite, reverse cash-and-carry, ensure that cash and derivatives markets do not diverge too far.

Cash settlement: The closing of a derivatives position by marking it to market and settling outstanding obligations in cash instead of by physical delivery of the underlying asset. Most financial derivatives and almost all over-the-counter derivatives are settled in this way.

Ceiling rate agreement: See cap.

CEV-option pricing model: CEV, or constant elasticity of variance, is an assumption made by some option pricing models, notably the Cox-Ross model, to accommodate empirical observations of volatility. The assumption is of an inverse relationship between the variance and price of the underlying. The variance referred to is usually that of the natural logarithm of the asset price relatives. These are assumed by many pricing models to be normally distributed with a variance that is proportional to the time over which the price change takes place. This implies that volatility will increase indefinitely as the time period to which the volatility relates is increased. This is not so.

Chooser option: A compound option that is neither a call nor put until, at a pre-determined date known as the choose or choice date, the holder of the chooser may trade it in for either a call or a put on the previously chosen underlying. If the call and the put have identical strikes and expiry dates, the option is a regular chooser and can be priced via an analytical model. If they differ in strike or expiry, they are termed complex choosers, which can only be priced using a numerical model. A chooser is similar to a European-Style straddle (simultaneous purchase of put and call) but, since the holder must choose between one or the other at some point, it is cheaper. It suits aggressive investors who wish to take a view on volatility.

The pricing relies on put-call parity and the fact that the option writer knows that the option holder will always choose the more valuable option on the choose date. In other words, if the call is more valuable than a put of the same tenor, the chooser holder will choose the call. If the put is the more valuable, the holder of the chooser will choose it, exercise it and create a synthetic put by shorting the underlying and rolling the position forward at the strike price. Also known as a double option or a preference option.

Circus option: See cross-currency swaption.

Circus swap: Currency swap in which one leg is fixed and the other is based on a floating index, usually US dollar Libor. Supposedly an acronym from combined currency and interest rate swap.

Clean index principal swap: The clean index principal swap is a path-dependent version of the normal index principal swap. In the latter, the principal can accrete or amortize, and once the process of accretion or amortization has started it either continues at the level set by the initial barrier or is accelerated as rates move to the next barrier. In the clean index principal swap, the swap notional is reset according to the Libor rate prevailing at the beginning of each calculation period. It is clean in the sense that for each calculation period the swap notional is totally independent of previous settings. This means that the swap's notional amount is far more directly linked to the direction of Libor than is the case for a generic index principal swap.

So, for example, say a corporate decides to pay fixed and receive six-month Libor and the amortization factors are set such that, if Libor is below 5.0%, the notional principal on the swap is zero. This means that if Libor is below 5.0% at the beginning of a calculation period, then for that period the hedger simply pays Libor -- the swap is deactivated. The higher Libor rises, the more of the hedger's outstanding liability is swapped into fixed until, at a predetermined point, the full liability is capped at the fixed rate payable on the swap. The product allows clients to fix without being affected by the cost of carry associated with a steep yield curve. In exchange for this, before the swap is fully activated the corporate pays a blended rate made up of Libor on the unswapped portion of the liability plus an above-market fixed rate on the remainder.

Cliquet option: A French name applied to a variety of options which lock-in or reset strike levels at predetermined points in a ratchet-like manner (vilbrequin a cliquet is French for ratchet brace) or which are automatically exercised or altered if the underlying reaches a pre-determined level (cliqueter is French for to knock and this automatic exercise is often called the cliquet clause). See ladder option, capped options, exploding option, barrier option.

Closed form solution: See analytical solution.

CMO swap: Collateralized mortgage obligations (CMOs) are securities whose repayment of interest and principal is backed by a pool of mortgages. A CMO swap is a type of mortgage replication swap, themselves a form of amortizing swap, whose notional principal reduces according to the repayment rate of a specified pool of mortgages or according to the prepayment rate of a CMO tranche.

Cocktail swap: Term once used to describe any complex swap.

COFI: The 11th District Cost of Funds Index, a US interest rate index important to savings and loan institutions. Sometimes used as a reference rate in swaps and bonds, particularly when short rates are expected to fall, because movements in COFI tend to lag short-term rates.

/floater: An FRN whose coupon is referenced to COFI.

/swap: A swap one of whose legs is referenced to COFI.

Collapsible swap: See callable swap.

Collar: A premium reducing options strategy in which the holder has bought a cap at one level and, to recoup some or all of its cost, has sold a floor at a much lower level. Collars are most commonly used to hedge interest

rate risk but have also been used to protect equity portfolios, currency and commodity exposures.

For example a short US dollar cash position could be hedged with the purchase of a US\$ call/DM put struck at 1.6000 and the sale of a US\$ put/DM call at 1.5365. Assuming a forward rate of 1.5673 and volatility at 9.8% this three month collar would be zero premium. At expiry if the spot is above 1.6000 the underlying position is hedged by the purchased option. If spot is between the two strikes the underlying is exchanged at the prevailing spot rate. If it is below 1.5365 then the profits on the underlying are capped by the sold option. See cylinder, participating forward, range forward, risk reversal.

Collar: A premium reducing options strategy in which the holder has bought a cap at one level and, to recoup some or all of its cost, has sold a floor at a much lower level. Collars are most commonly used to hedge interest rate risk but have also been used to protect equity portfolios, currency and commodity exposures. For example a short US dollar cash position could be hedged with the purchase of a US\$ call/DM put struck at 1.6000 and the sale of a US\$ put/DM call at 1.5365. Assuming a forward rate of 1.5673 and volatility at 9.8% this three month collar would be zero premium. At expiry if the spot is above 1.6000 the underlying position is hedged by the purchased option. If spot is between the two strikes the underlying is exchanged at the prevailing spot rate. If it is below 1.5365 then the profits on the underlying are capped by the sold option. See cylinder, participating forward, range forward, risk reversal.

Collared: Used of instruments to which a collar has been applied.

**/floating-rate note:** An FRN with a minimum and maximum coupon. Such **notes** contain two embedded options: the issuer (investor) is effectively long (short) a cap and short (long) a floor. Some collared FRNs incorporate caps and floors that step-up over the life of the note.

In a falling rate environment these notes outperform significantly since the cap is unlikely to be hit (so the investor stands to keep the premium) and the floor is gaining in value. Conversely, it underperforms significantly in a rising rate environment. In other words, the embedded options combine is a double-whammy of sensitivity to interest rate movements which gives collared FRNs surprisingly high duration compared with vanilla or floored FRNs.

**/swap:** An interest rate swap combined with an interest rate collar on the floating leg.

Collateralized swap: A swap agreement in which one or both counterparties puts up collateral to guarantee its ability to meet its obligations under the agreement.

Combination yield curve swap: A yield curve swap in which the returns from more than one market are swapped for the returns from one market. For example, a counterparty might pay the two-year CMS Deutschmark rate and receive 50% of the two-year CMS Deutschmark rate plus 50% of the two-year CMS yen rate

Commodity: A non-financial asset, such as oil, metal or sugar. Agricultural commodities are known as softs.

**/derivative:** A derivative contract on a commodity price or index. Exchange-traded futures and options are available on a wide range of oil, metal and soft products. The OTC markets also offer options and swaps on a

variety of crude oils, on refined products not covered by the exchange-traded markets such as jet kerosene, non-ferrous metals, natural gas and electricity.

/interest (dividend)-indexed notes: A commodity linked note whose interest payments are tied to the price of a commodity or commodity price index.

/-linked interest rate swap: A swap in which an interest rate index such as Libor is exchanged for a commodity-price linked fixed rate. A user of aluminium might wish to link the price of his major cost, aluminium, to the price of his debt. He could elect to receive Libor and pay an aluminium-linked rate such that as the price of aluminium rises, the fixed rate he pays declines. It is also possible to swap a commodity price itself for Libor. See hybrid derivative.

/linked note: A bond or note with embedded long/short positions in commodity futures or options or commodity index options. These notes provide yield enhancement to either coupon or principal repayment if the investors views on commodity price movements are correct.

/option: An option on a commodity price. Commodity caps, floors, warrants and swaptions are available, as are options on the spreads between the prices of different commodities.

/swap: In its vanilla form an agreement identical to a fixed-for-floating interest rate swap except that the payment streams are based on the price of a commodity such as crude oil.

For example, an oil producer wishing to lock in the price of his production of 600,000 barrels a year can pay a floating rate equal to the pre-agreed price index times 50,000 barrels a month and receive a pre-agreed fixed amount per barrel on the same notional 50,000 barrels a month. The fixed price is set upfront by reference to the prevailing swap or forward market. An oil consumer would enter such a swap as a fixed payer. As in an interest rate swap, typically no physical oil changes hands. The producer continues to sell 50,000 barrels a month to the market and channels that floating payment stream into the swap in exchange for the fixed rate.

However, physical delivery can be accommodated.

A full range of commodity swap structures is available. Basis swaps of one floating index for another, particularly involving prices for commodities with different delivery locations, are common. Commodity yield curve swaps, known as backwardation and contango swaps, are also available.

Compound option: An option giving the holder the right but not the obligation to buy or sell another, pre-determined, option at a pre-agreed price. The commonest examples are options to buy caps or floors, known as captions and floortions. The classic application of a compound option is by companies tendering for contracts who will require currency or interest rate hedges if they win, but not if they lose. Compound options are cheaper than standard options but if both options are eventually exercised, the total premium for the compound options will be more expensive than the premium for a single normal option.

Concertina swap: An interest rate swap whose notional principal varies according to the present value of an existing fixed-rate paying swap and used to increase near-term protection from high floating rates. While the notional principal is normally adjusted within a concertina, rate and tenor can also adjusted. Also known as a net present value (NPV) swap.

Conditional forward purchase contract: A variation of the break forward, this is a forward agreement under which the party long the contract can



cancel the forward purchase on payment of a fee. Instead of an upfront fee, the buyer of the contract can set a forward price below the market rate.

Condor: A complex spread trade executable in the futures or options market in which the holder is long and short two spread positions -- strangles -- on the same market. The position is limited on both the up- and downside and is directionally neutral.

Confidence interval: An estimate of the probability that an observation or a financial variable will fall inside or outside a designated range. Important in a range of financial modelling.

Constant maturity swap (CMS): For each maturity for which it is available the CMS rate is an index consisting of swap rates adjusted to that constant maturity. CMS rates are available in a number of major currencies and in Europe and Japan are used as a CMT equivalent because of the lack of regular government bond issuance across the curve. For investors in these countries the CMS index is a benchmark yield curve index.

/FRN: see constant maturity Treasury FRN.

Constant maturity treasury(CMT): CMT rates are indices consisting of the semi-annual yield of outstanding US Treasuries adjusted to a constant x year maturity. So the 10-year CMT would be adjusted to a constant 10-year maturity (hence they have no duration). CMT **rates** are calculated daily by the Federal Reserve and published weekly.

/FRN: A **floating-rate note** that resets on a quarterly or semi-annual basis but whose coupons are indexed off long maturity CMT indices. In a steep yield curve environment they can produce a significantly higher yield relative to comparable maturity vanilla FRNs as well as retaining upside in a bear market. The risk in the note is that, since the coupon is reset based on the long end of the yield curve, the note's yield advantage over a vanilla FRN will disappear quickly if the short rates rise faster than long rates (that is, the yield curve flattens) from initial levels. This effect is leveraged: on a five-year CMT FRN typically if the 0 to five year sector of the yield curve flattened versus the 5.25 to 10-year sector by one basis point, the note would lose 6.1 bp of value. The equivalent investor position is long short maturity fixed rate paper, short longer maturity Treasuries.

/-Libor differential notes: A CMT-Libor differential note (a second generation structured asset because of the incorporation of multiple indices) pays the investor the difference between a CMT rate and a short-term Libor index. A typical note might have a three-year maturity and pay 5.00% for the first year and then the 10-year CMT **rate** less three-month Libor plus 1.60% reset quarterly with a minimum coupon of zero. This could give investors higher spot **floating-rate** yields than are possible with either the CMT FRN or vanilla FRNs. As with other CMT-linked **notes**, the main risk is that yield curve flattening will erode this advantage. The investor is effectively long a CMT FRN and long Eurodollar futures. This is one of the kinds of structured notes that Robert Citron, treasurer of Orange County, used to make the spread plays which were to prove so disastrous. He purchased one entire issue whose first coupon was 6% but whose reset a year later was 5.065% and six months later was close to 3.985%.

/options: Caps and floors on CMT rates.

/swaps: Swaps in which one leg is linked to CMT rates. Most commonly, both CMT and CMS rates are used in yield curve swaps where a counterparty pays the CMT or CMS rate at one part of the curve, say the two-year CMS or CMT

rate, and receives it at a different part of the curve, say 10 years.

Contango: Originally a London Stock Exchange expression meaning to postpone payment and delivery of stock from one day to the next or the fee for this postponement. Nowadays almost always used of the commodity market to describe the situation in which the futures prices are above spot prices.

/swap: A commodity curve swap which enables the user to lock in a favourable contango, or positive spread, between forward and nearby prices. For example, an oil producer might pay the monthly average of the daily difference between the nearby and 12-month futures contract on a pre-agreed notional principal amount of oil and receive a fixed spread of 30 cents per barrel.

Another way of looking at the structure is that the producer pays a floating amount equal to the average of the 12-month futures contract and receives a floating payment equal to the average nearby contract plus the 30 cent spread. This enables the commodity producer to lock in the positive spread between forward and nearby prices and also to hedge against anticipated backwardation.

Contingent: In derivative products this term usually means 'dependent on'. Thus:

/option: An option whose existence is dependent on another index level being triggered. Once that trigger is hit, then another option with another (or the same) strike comes into being.

/premium option: A path-dependent option for which no upfront premium is payable. The premium is paid at expiration and only if the option expires in the money. Even if the option is in the money, but not deeply enough to recoup the premium, the option still has to be exercised and the premium paid. If the option expires at the money or out of the money, no premium is paid. For the option holder to benefit, the option either has to expire at or out of the money or it has to expire sufficiently deep in the money to recoup the contingent premium. The premium is more expensive than a conventional option premium because it is paid only if the option expires in the money, and this is not guaranteed. The premium can be approximated by dividing a conventional premium by the probability of the option expiring in the money, that is its delta, adjusted for the time value of money.

Contingent premium options are constructed from the purchase of the conventional option and the simultaneous sale of a digital option struck at the same level with a payout equal to the premium the provider of the contingent premium option calculates as sufficient compensation. If the option moves into the money, so does the digital creating the premium payment. If the option remains out of the money, so does the digital -- so no premium is payable. Contingency has been applied to caps, floors, swaps, swaptions and other options. It is most commonly applied to caps, where the structure is often modified slightly: the cap buyer pays a small upfront premium and then has to pay a further premium installment if the selected index (usually of interest rates) fixes above the pre-set contingency level. If the contingency level is never reached, then the premium is lower than for a conventional cap. If the contingency level is breached then the total premium payable is higher. See deferred premium option, installment option, mini premium option, part contingent option, pay-as-you-go option.

/swap: A swap activated by a specified event and usually paid for with a premium. Swaptions can be viewed as contingent swaps.

Continuous swap: The combination of a vanilla swap and a long-dated forward

so that the swap maturity is maintained at a constant tenor.

Conversion: An arbitrage trade so called because it can be used by the holder of a put to alter his position to a call or vice versa.

Converting a put to a call involves the purchase of the put, purchase of the underlying or future and sale of a call. The options have the same exercise prices and expiration date. This position is itself called a conversion or long option box.

A call is converted to a put by buying the call, selling the underlying or future and selling a put. This position is called a reversal or short option box. See reversal.

Convexity: Convexity is the second derivative of price with respect to yield. It is a time-squared weighted average maturity measure and describes how duration changes with yield -- that is it describes the rate of change in the price of an interest rate product for a given movement in interest rates -- and is a corrective to the limitations of duration as a measure of sensitivity.

This price/yield relationship is convex in shape if plotted (hence the name): the smaller the radius, the higher the convexity. So the rate of change in the price of an instrument with zero convexity is linear: it changes price in a constant ratio whether rates go up or down. An instrument with positive convexity will appreciate more in price for a decline in rates than it will depreciate for the same back-up (rise) in yields. An instrument with negative convexity falls faster in price for a given rise in rates than it rises for the same fall.

Fixed-rate bonds and swaps (receiving fixed) have positive convexity. Mortgage bonds, index amortizing swaps and other bonds or swaps containing embedded options have negative convexity.

When used of an option, convexity indicates a difference between the rate of change of the option premium and the underlying for a given movement in the underlying; it is measured by gamma. An option with positive (negative) convexity performs better (worse) than delta predicts for large changes in the underlying.

Correlation: A measure of the degree to which changes in two variables are related. Correlations between markets or products are important in hedging all types of portfolio, in arbitrage and in index replication.

/dependent options: options whose payoff depends on the correlation between two or more currencies or asset classes. See basket options.

/risk: Generally, the risk that two variables or instruments are correlated in a way that is unfavourable. Identifying and quantifying correlation risk has become a key element in pricing and hedging certain products.

In yield curve options, spread options and cross-currency caps, the correlation between the underlying assets is called a first-order effect as it directly affects the option price.

In quanto products, like differential swaps, there is a second order or indirect effect, in that case between interest rates and exchange rates.

/coefficient: a number between minus one and plus one that indicates the strength and direction of a linear relationship between two variables. A correlation coefficient of minus one indicates that they are perfectly negatively correlated, zero that they are not correlated at all and one that they are perfectly correlated. The correlation co-efficient is a

normalized measure of covariance used because it is a unit-free measure (its value is not influenced by the size of the values of the observation).

Corridor: A premium-reducing options strategy in which the holder is long a cap at one level and short another at a higher level. The holder of the corridor is protected against rate rises between the strikes of the two calls. Unlike the holder of a collar though, the holder benefits fully from any downward movement in rates. Also sometimes applied to a collar on a swap created by using two swaptions.

/option: An option (most often used in the FX markets) that profits to the extent that the underlying trades within a pre-set range. The buyer specifies the range and pays a premium upfront. The option's maximum payout is specified in advance as a multiple of the premium. Then, for every day (week, month) in which the underlying trades within the range, a portion of that maximum payout is locked in. No daily payment is made if the underlying trades outside the range. The final payout is calculated on a pro rata basis. The corridor option is often embedded in notes to create accrual or range FRNs. It differs from the similar range binary option (which is used to create binary accrual or range FRNs) in that a breach of the range boundaries does not lead to the termination of the entire structure as it does with the range binary product. See boundary binary option, digital option, limit binary option, range binary option, range floater.

Coupon swap: See interest rate swap.

Coupon accrual swap: See accrual swap.

Covariance: A measure of how two random variables behave in relation to each other. Matrices of covariances are used in several different financial models, the most famous of which is Sharpe's capital asset pricing model. See Arch.

Covered: Cover is a long position in on instrument that offsets partially or wholly a short position in another. Hence:

/call: The sale of call options while long the underlying instrument. Also known as a buy-write. The covered call writer gives up any upside potential beyond the strike of the calls in exchange for the premium income. If he believes that the price of the underlying will exceed the strike, then this is a form of forward sale.

/put: The sale of put options while long the underlying. Also known as targeted put selling because the writer is effectively targeting a price of which he will buy the underlying while increasing its yield by taking in option premium.

/warrant: A warrant covered either by other warrants or by holdings of the underlying which entitles the holder to buy existing securities in a company at a pre-set price for a given period. Originally a feature of the Japanese cum-warrant bond market where warrants were stripped from bonds and then repackaged, covered warrants have become popular in Germany and Switzerland (where they are known as stillhalter warrants.)

Cox-Ingersoll-Ross: A generalization of the Black-Scholes option pricing model incorporating the work of John Cox, Stephen Ross and Jonathan Ingersoll. The model represents one of the two approaches followed by term structure option pricing models. It models the expected returns from movements in the term structure in order to price them. The second approach, followed by Ho-Lee, Heath-Jarrow-Morton, Black-Derman-Toy, and Hull-White utilizes the volatilities of the various sectors of the term structure to derive a probability distribution for an arbitrage-free

binomial, trinomial or multinomial lattice of the term structure. These models all have one thing in common: they allow for the whole-term structure to be stochastic instead of the price of a single underlying instrument or a single interest rate. The whole-term structure is represented at each node of the lattice. This methodology allows both long-term and short-term interest rate instruments to be priced with an internal consistency not possible if different models are used to price different instruments.

Crack spread: The spread between the price of crude oil and the refined ('cracked') distillates such as gasoil and naphtha. Also known as the refiners' margin.

/option: An option on the crack spread -- a type of rainbow option.

/swap: A commodity swap that enables refiners to lock in a margin by paying the floating price of the refined product or products, calculated as an average over a pre-set period, and receiving the floating price of its chosen crude oil feedstock plus a fixed margin -- the crack spread. By locking in this margin, refiners can hedge against a narrowing in the differential between crude oil prices and the prices of the refined products it produces. However, in so doing they give up the right to profit from any widening of the spread.

Credit derivative: Derivatives which enable holders to hedge or take views on credit risk in isolation. Examples are: a junk bond swap under which the investor pays Libor plus 100 bp and receives the total rate of return of a basket of junk bonds marked-to-market of each reset. The counterparty would be a bank who wishes to reduce exposure to the high-yield market while the investor gets off balance sheet exposure to high-yield securities, perhaps that he is not permitted to buy directly; a bank-loan swap in which the investor pays the interest rates due on a basket of loans and receives a Libor-based rate above that of each loan; or simply a call option on the spread between Mexican and US Treasuries.

Credit spread: The difference in yields between fixed-income instruments of different credit qualities. Also the term used to describe the options position created by the combination of a call bear spread and put bull spread. See debit spread.

/option: A form of credit derivative, this is an option on the spread between two fixed-income indices with different credit bases, for example the spread between yields on a double-A corporate bond index and that on comparable US-Treasuries. They are used by regional banks, insurance companies and fund managers either to hedge the credit risk of their portfolio or as a tool for picking up yield.

/swap: See bond index swap.

Cross-category structured assets: Bonds or notes whose performance is linked not to fixed-income indices or spread differentials but to the performance of other asset classes. See currency indexed note, commodity linked **note**, equity linked **note**, bond index **note**.

Cross-currency: Used of any instrument that involves the explicit or implicit exchange of cashflows denominated in more than one currency. So:

/basis swap: A **floating-floating** interest **rate** swap with payments denominated in different currencies.

/option: One option or a series of options whose payout is based upon a reference (foreign) Libor exceeding (cap) or falling below (floor) an

absolute strike rate with respect to the base (domestic) Libor. The payout is denominated in the base (domestic) currency.

So, under a spread rate or cross-currency cap, the buyer receives the spread between two interest rates in different currencies minus a strike spread.

The cap version is commonly used to cap the foreign Libor payment stream in a differential swap. It can be viewed as a strip of options on forward spread agreements. The floor version is used to ensure that coupons in leveraged currency protected **notes** do not become negative. Also known as a (spread) **rate** differential option.

/swap: A fixed-for-**floating** currency swap. Also known as a currency coupon swap. See currency swap.

/swaption: A swaption in which one counterparty sells/buys the right to enter into a currency swap with another counterparty on a pre-determined date under which the first counterparty pays a pre-set fixed or floating rate in one currency in exchange for a pre-set fixed or floating rate in another currency. The principal amount for final exchange is set for both currencies. Initial exchange of principal amounts is not necessary. A borrower who wished to reduce his funding costs by issuing a note denominated in one currency but convertible into one denominated in another could use this instrument to hedge against investor exercise. Cumulative option: A path-dependent option whose payout is based upon the cumulative price performance of an asset over pre-set intervals. One of the commonest applications is the Q-cap (for Cu-). A cumulative cap caps annual interest expense at a pre-set level. For example, a borrower with a two-year \$10 million floating-rate loan might have budgeted \$600,000 in interest costs for the year. They can purchase a cumulative cap at \$600,000 which fixes their maximum interest cost at \$ 600,000. See Q-cap.

Currency basket option: An option on a customized portfolio of currencies. The option uses a pricing model that creates an index that represents the base currency value of a predetermined portfolio of foreign exchange positions corresponding to the exposures of the option buyer. The strike price of the option is set relative to the index allowing the option buyer to hedge against the base currency value of the portfolio falling below a certain point while retaining the potential to gain if the portfolio rises in value. The premium of the option will reflect the correlations of the basket components: if they are negatively correlated, then moves in the value of one component will be neutralized by opposite movements of another. Unless all the components are highly correlated, the option will be cheaper than a series of individual currency options. The same principles apply to interest rate basket options.

Currency indexed note: A bond or note whose performance is linked to a predetermined cross rate. There are two types: the coupon currency indexed note and the principal currency indexed note (also known as a principal exchange rate linked note -- PERL). The former pay any yield enhancement via a higher currency linked coupon, the latter through capital gains. A typical note might pay no coupon but have redemption formula of  $100\% \times [1 + 1.5 \times (\text{FXmat} - 1.6925)/\text{FXmat}]$  where FXmat is the DM/US\$ cross-rate at maturity. Some notes had a further barrier-like condition that would trigger a predetermined redemption level (say 110%) if a particular rate were breached at any time by the underlying. The note's value is dependent upon the spot rate, US interest rates and German interest rates. Marking these notes to market (as opposed to buy and hold strategies) is very complex.

Currency option: The right but not the obligation to buy one currency

against another. Since the right to buy one currency for another is the same as the right to sell that currency for the other they are typically described thus: Deutschmark call/dollar put.

Currency protected: Used of instruments which give the buyer exposure to a foreign index or asset without the exposure to the foreign currency that would normally follow. See quanto, quantize.

/note: A bond whose coupon is linked to interest rates in one (usually foreign) currency, but which is denominated in another (usually domestic) currency.

One example might be a US dollar FRN paying a US investor Deutschmark Libor in dollars. Versions, in which investors receive three-month Libor in one currency less three-month Libor in another less a fixed spread have also been popular as have versions of this structure leveraged up to ten times. Other versions are simply quantized versions of common structures. For example, the commonest initial structures were quantized inverse **floaters**. For example, a **note** paying 9.11% minus six-month sterling Libor paid in US dollars would provide a currency risk averse US investor with a bullish interest **rate** play on sterling.

Initial bullish quanto notes were based on Libor when high short-rates and flat/inverted yield curves in Europe gave investors high upfront coupons. When yield curves become positive with an inversion between short-term Libor rates and two- and three-year rates after the ERM crisis, these short-term lined notes produced smaller initial coupons and so interest switched to CMS-linked notes.

/option: An option denominated in one currency on an asset denominated in another. An option on the Nikkei index denominated in dollars is one example. (In fact, such Nikkei-linked options were the first quanto products to take off.) These options give holders exposure to their desired underlying foreign asset without the worry of currency exposure. As with the differential swap, the difference in cost between quanto options and standard options is a function of the correlation between movements in the underlying asset and its currency. If they are positively correlated, a call will be cheaper and a put more expensive. Also known as a guaranteed exchange rate option.

/swap (CUPS): An interest rate basis swap in which the buyer pays an interest rate in one currency, usually his domestic Libor, and receives a second currency's Libor plus or minus a spread with all payment streams denominated in the same -- again, usually the buyer's domestic-currency.

It was the boom in this product that spurred the search for correlation risk because of its importance in pricing these swaps. A swap writer paying Deutschmark Libor in dollars and receiving dollar Libor in dollars funds the Deutschmark Libor payout through the swap market. He is therefore hedging US\$ denominated DM interest rate risk using DM denominated instruments. So, even if interest rates remain the same, he is exposed to the risk that the dollar will strengthen, leaving him too few Deutschmarks to pay his dollar liability. Although the prevailing exchange rate will determine the initial size ('quantum') of the hedge, ongoing changes in exchange rates will vary the size of the hedge required.

Hedging this risk means taking a view on the correlation covariance between interest rates (DM Libor) and DM/US\$ exchange rates. That is, to what extent will arise in Deutschmark interest rates, and so the amount of money the swap writer must pay out to the buyer, be offset by a strengthening of the Deutschmark against the dollar? Known by a large number of other names including cross-indexed basis (CRIB) swap, cross-rate swap, diff,

differential swap, interest rate index swap, Libor or rate differential swap.

Currency swap: The spot sale/purchase of one currency for another combined with a simultaneous forward agreement to repurchase the agreed currency amounts at a pre-set date and an agreement by the counterparties to exchange the interest payments on their swapped currencies. Also known as a cross currency swap, cross-currency rate swap.

Curve lock: Any instrument which locks in the spread between two different points on a yield curve.

/swap: The combination of a yield curve swap with an obligation to enter into a swap at a future date. They are common in both financial and commodity markets where they are used either as outright speculation on future curve movements or to benefit from a favourable curve shape when the absolute level of the underlying market makes entering into a swap outright unappealing.

For example, instead of simply entering into a contango swap, an oil producer unwilling to fix the price of his production at current low swap rates can enter a curve lock swap. Under this he agrees to enter a swap whose rate is set at a differential to a nearby futures contract before the expiry of that futures contract. If his belief that the contango will diminish proves correct and spot prices rise, the futures price will rise and he will be able to trigger the swap at a significantly higher level than was available in the swap market originally. The differential provides a cushion if spot prices fall.

Curve swap: See yield curve swap, contango swap, backwardation swap.

Cylinder: A position long a put option and short a call option with a different strike price, or long the put and short the call again with a different strike. The position provides a tailorable level of downside protection with the premium reduced by the amount of premium income received at the expense of forgoing upside participation. A bull cylinder is long a put, short a call and the underlying asset. A bear cylinder is short a put, long a call and long the underlying. Both these positions are also known as fences. See collar, range forward, risk reversal.

D

Debit spread: The option position created by the combination of a call bull spread and a put bear spread.

Debt warrant: A warrant giving the holder the right but not the obligation to buy a specific bond. Warrants are available on a variety of government debt instruments and debt warrants are also occasionally attached to public bond issues by corporations and financial institutions.

Deferred: Many derivative instruments can be postponed or have parts of their mechanisms postponed. Thus:

/payment option: An American-style option which allows the holder to freeze the underlying price at which it will be exercised. The intrinsic value of the option is paid on maturity. Also known as a deferred payout option.

/premium option: An option on which the premium, instead of being paid upfront, is payable when the option is exercised or expires. At this point the premium is netted against any payout and the remainder is paid by the option holder to the option writer. See contingent premium option.

/start option: Options which exist and can be traded before they are



activated, such as barrier options.

/strike price option: An option that allows the holder to rate for a predetermined period after its trade date. These options allow the holder to lock in current low levels of volatility in the expectation that volatilities will rise.

/swap: A swap in which some or all of the payments are deferred for a pre-set period after they have been calculated and come due. These are tax or accounting driven and payments tend to be deferred across fiscal year ends and other key balance sheet dates.

Delayed Libor reset swap: See Libor-(set)-in-arrears swap.

Deleveraged: Used of derivatives or notes with embedded derivatives whose payoff is linked to a fraction of some index or variable, just as leveraged is used of instruments whose payoff is linked to a multiple of an index, spread or variable.

/Prime FRN: A **floating-rate note** that pays a coupon of the type  $0.5 \times (\text{Prime}) + 0.80\%$ . The term deleveraged refers to the fact that the coupon index is a fraction of Prime. By deleveraging, the investor obtains a higher upfront floating rate coupon than is achievable with a Prime FRN at the time of purchase. He receives this higher coupon in exchange for assuming the risk that if Prime rises significantly, he will only participate in half the rise.

/CMT FRN: See step-up recovery floater (SURF).

Delta (character omitted): Mathematically the first partial derivative of the option price with respect to the underlying price, delta is the rate of change of the value of an option for a given change in the value of the underlying asset. It is an absolute change measured in currency units. An option with a delta of 0.5 is expected to change in value 50 cents for every \$1 move in the underlying.

Delta is also the neutral hedge ratio derived from the Black-Scholes model. So the delta of a stock option indicates the number of shares needed to hedge a position in an option on that stock -- for example a portfolio long 100 stock call options with delta of 0.3 is hedged by a short position of 30 shares -- and the delta of an interest rate option indicates the notional amount of interest rate swap required to hedge it against small movements in interest rates. (In fact there are many different ways in which delta can be defined for interest rate options: delta can be calculated with respect to the underlying bond price, with respect to each underlying forward interest rate (as sometimes with cap deltas), or with respect to a small parallel shift in the zero coupon yield curve so that delta is the change in the option price for a small change in all zero-coupon rates.)

Delta can also be interpreted as the probability of a call option expiring in the money: an at-the-money-forward option has a delta of 0.5, since with an equal probability that the underlying will next move up or down, the option has a 50% chance of expiring in-the-money and a 50% chance of expiring out-of-the-money.

Delta increases in a non-linear fashion from zero to one as an option moves from far out-of-the-money to deep in-the-money. This is because a deeply in-the-money option has a high probability of expiring that way and so will act as a proxy for the underlying, rising and falling in a 1:1 ratio with it. A deeply out-of-the-money option will have little probability of being exercised, so a small change in the price of the underlying will do little to close the gap between asset and strike price. In addition, the closer an option is to the money, the faster delta

changes. Delta also increases with time to expiration and with volatility for out-of-the-money options and decreases with time to expiration and with volatility for in-the-money options; it is also pushed up by rises in interest rates.

/hedging: As derived from Black-Scholes, delta is the ratio of underlying asset to options necessary to create the risk-free portfolio that is at the heart of the formula. Delta hedging is the application of this concept to the hedging of options portfolios. A true delta hedge is the combination of underlying asset and money market instrument that creates the riskless hedge Black-Scholes says will exactly replicate the pay-off of the option to be hedged. Less specifically an option is said to be delta-hedged if an offsetting position has been taken in the underlying asset in proportion to the option's delta.

/neutral: An option portfolio delta-hedged such that it has no exposure to small moves in the price of the underlying. In practice, since delta is altered by all but the very smallest changes in the price of the underlying, by the volatility of that price, by the maturity of the option, by how close-to-the-money the option is and by interest rates, the ratio of options to underlying must be constantly rebalanced to maintain delta neutrality.

/positive: Call options are said to be delta positive because their value increases by the value of delta for a one unit rise in the price of the underlying. Put options are said to be delta negative because their value decreases in value by Delta for every one unit rise in the price of the underlying. That is, the delta of a call is a positive function of the level of the price of the underlying and that of a put a negative function.

This relationship is upset in barrier options. A knock-out call/put will behave normally until, at a point near to the knock-out, any further increase/decrease in price will cause the value of the call/put to drop because the probability of its being knocked-out is more significant than the fact that it is moving further into the money. At this point puts become delta positive and calls delta negative.

Derivative instrument: A security or contract whose value is dependent on or derived from the value of some underlying asset. The main classes of derivative instruments are: forwards, futures, options (and their securitized equivalents, warrants) and swaps. There are derivative contracts on currencies, commodities, equities, equity indices, interest rates and combinations of these. Derivatives can be exchange-traded or over-the-counter. The latter are contracts between counterparties and are telephone and screen traded by banks outside the regulated exchanges.

Diagonal spread: So-called because it is a cross between a horizontal and vertical spread, this is an option spread trade in which the holder is short options of one maturity and strike price and long options of a different maturity and different strike price. A diagonal bull spread is the sale of a shorter maturity option and purchase of a longer maturity, lower strike price option. A diagonal bear spread is the purchase of a longer maturity option and sale of a shorter maturity, lower strike price option.

DIFF: Shorthand for the forward interest rate differential between comparable fixed-income instruments denominated in different currencies. As a verb 'to diff' is used to mean quantize.

/swap: Short for differential swap.

Difference option: The general class of options of which spread options,

rain bow options and cross-currency caps are examples. Difference options pay the holder the price difference between two underlying assets if that difference is greater than that specified by the initial strike price.

Differential swap: See currency protected swap.

Diffusion process: A continuous-time model of the behaviour of a random variable that uses geometric Brownian motion as its basic assumption. In the Black-Scholes model, the price of the underlying follows a pure diffusion process -- that is, it is assumed to move continuously from one point to another. The consequence of the is assumption is that the terminal distribution of share prices is lognormal. Other models, particularly discrete-time models, use modifications of the process.

Digital option: An option whose payout is discontinuous. If the strike price is reached, the payout is a fixed, pre-determined amount no matter by how much the option is in the money. This amount is usually expressed as a multiple of the premium: a payout of 1:2.5 would mean that the option would pay 2.5 times the premium invested.

The simplest digital options are at-maturity or European digitals. These are path-independent cash-or-nothing/all-or-nothing options: a call (put) pays nothing if the underlying asset price finishes below (above) the strike price or pays a predetermined constant amount if the underlying asset price finishes above (below) the strike price. Versions of these are available, called asset-or-nothing digitals, payout the value of the underlying at maturity of the spot trades above (call) or below (put) the strike levels. And digital gap options, pay out a sum defined by the underlying asset price minus a constant.

Path-dependent varieties are also available in the form of digital barrier options. The 'in' versions are digital options whose payouts are automatically triggered either as soon as the underlying asset price hits the barrier or at expiration as long as the barrier has been hit at some point during the option's life. These are essentially American-style digitals and are sometimes called touch or one-touch options and some varieties require that the barrier has been hit more than once. The 'out' versions are digital options which payout as long the barrier is not hit.

The conditions that determine a digital option's payout are many: for example, a spot rate trading or not trading at a certain level, a range maintained or broken and a level trading only after another level trades.

More complex versions are also available which pay out (or do not) only when the barrier has (has not) been hit and the asset price reaches (does not reach) a predetermined point.

Like barrier options, digital options are difficult to hedge because, around the barrier, small moves in the underlying can have very large effects on the value of the option. In this respect the pricing characteristics are similar to swaptions. Digital options are cheaper than conventional options and should be preferred to them when the purchaser expects the option to move only marginally into the money since the payout is large compared to a small movement in the underlying but would represent a limitation on profit potential if the underlying were expected to move substantially. Digital caps and floors are the commonest naked digital products with the digital cap being useful where rates are expected to move far enough to trigger the option but where a conventional option would represent the purchase of unwanted protection. A number of exotic swaps and options contain embedded digital options. See accrual swap, range-FRN, contingent premium option. Also a number of products known as binary options are in fact combinations of simpler digitals: see boundary binary

option, corridor option, limit binary option, range binary option.

Diffitions: Option on a diff(erential) or currency protected swap.

DIRF: Acronym for differential interest rate fix -- a contract that allows the holder to lock in the spread between different parts of the same yield curve. It is customized in terms of settlement dates, value per basis point and predetermines two points on the yield curve. For example, an investor might believe that the UK swap curve will flatten over the next year more than is currently implied by the market. He could sell a two years versus seven years DIRF for settlement in one year. He would select an amount per basis point, say £1 million, and would receive the DIRF price. He is selling the spread or difference between the implied forward rates for the two yield curve points chosen, in this case the one year forward two year rate and the one year forward seven year rate. If the curve flattens more than the implied forward rates suggest, then this investor will be able to close his position profitable. An investor who believed that the curve would steepen, that is that the spread would widen, would buy the DIRF. The trade can be reversed at any time to take profits or limit losses and the DIRF has no exposure to parallel movements in the yield curve. However, investors must note that expected moves are already priced in as the trade is priced off the implied forward curve. See forward spread agreement, yield curve swap, curve lock.

Discount swap: A swap in which the fixed-rate payments are below the market rate. At maturity the discount is repaid with one payment. The structure is useful in financing projects which will not generate income to pay under the swap until they are completed.

Distribution: The patterns of values of a variable associated with particular statistical models. Assumptions about the distribution of the probabilities associated with prices of the assets that underlie option contracts occurring in the future are used to determine the probability that an option will be exercised. The value of the option is then derived from this probability.

All things being equal, the larger a distribution of expected values of the underlying asset of an option, the higher the option premium. This is because a large distribution will encompass a large number of extremely in-the-money outcomes which are not offset by equally large negative returns (since an option cannot be worth less than zero). A small distribution will generate a low option value since only modest positive returns fall within the realms of probability. In the case of the assets that generally underlie options contracts, the size of the distribution depends on time and volatility. The more time there is for the asset price to move, the more potential values it can have and so the larger the probability distribution. Since this also means the more likelihood of the option being exercisable in-the-money, it means the greater the value of the option. Likewise, the greater the volatility of the underlying, the larger the distribution, and the higher the value of the option. This means that the distribution curve applicable to a given option is constantly changing. An option premium is also affected by the location of the distribution curve relative to the strike price. For an option where the forward outright is equal to the strike, half of the possible outcomes will be positive and half zero (as a result of the random walk assumption). If the market moves so that the option moves into the money, so a larger number of possible outcomes will be positive, and some highly positive outcomes become possible which were not before, and so the value of the option rises. Conversely, if the option moves out-of-the-money, relatively few of the possible outcomes will be positive, and more will be zero. This will cause the value of the option to fall. The commonest distributions assumed by option pricing models are normal distributions, lognormal distributions and binomial distributions.

Double barrier option: A barrier option in which there are not one but two instrikes or outstrikes or combinations of the two.

Double-up swap: A fixed-for-floating (usually commodity) swap in which the fixed-rate payments are set lower than the market rate. In exchange, the fixed-rate payer grants the floating-rate payer a put option to double the notional amount of the swap if the spot price of the underlying falls below a pre-set strike price, usually the same as the discounted swap rate. The difference between the off-market and market rates represents the premium for this embedded option. If the strike is hit, then not only is the fixed-rate payer paying a higher price for the underlying than the current spot rate, he is paying it on twice as much as the original notional principal of the swap. If a commodity user/producer uses double-up swaps to hedge more than half their real requirements/production and the option is exercised, he ends up overhedged. That is effectively speculating, since he has fixed prices on more of the commodity than he has a true underlying exposure to.

Double option: See chooser option.

Down-and-in-option: A barrier option activated when the price of the underlying moves down through a pre-set strike price or barrier level known as the instrike. See down-and-out option.

Down-and-out: A barrier option that is deactivated when the underlying trades through a pre-set barrier level.

/floored swap: The combination of receiving floating under an interest rate swap and the sale of a down-and-in floor with the instrike set well below the fixed rate on the swap and with a strike at the swap rate. For example, a down-and-out floored swap might fix a floating-rate borrower's cost of funds at 5.90% if rates rise above 5.90% while allowing him to benefit from rate falls down to 4%. If rates do hit 4% though, the down-and-in floor is exercised against him at 5.90%. So if Libor is above 5.90% or below 4% the borrower is fixed at 5.90%.

/option: A barrier option deactivated when the price of the underlying moves down through a pre-set strike price or barrier level known as the outstrike. For example, a European-style down-and-out floor would knock-out if rates fell below a certain level. They can be structured with progressive knock-out levels -- in this case, levels that move down with every reset.

Drawdown swap: See accreting principal swap.

Drop-lock swap: A deferred-start interest rate swap in which the fixed-rate payment is reset to a lower/higher pre-agreed level if, between the time of the agreement and the commencement of the swap, the floating reference rate drops below/rises above a predetermined level. The amount of time for which it remains below/above this level is also a variable in some drop-lock structures.

Dual: Used of any structure involving two key variables.

/coupon swap: A fixed-for-floating interest rate swap in which one counterparty has the right to alter the currency in which payments are made contingent upon a predetermined move in exchange rates -- usually if rates move against the swap's base currency.

/currency bond: The combination of a fixed-rate bullet-repayment bond and a long-dated forward contract to create bonds whose principal is denominated in one currency but whose **interest** payments are in another. See currency indexed no, reverse principal exchange rate linked

**security.**

/currency option: An option settled in either of two currencies at the choice of the option holder.

/currency swap: A currency swap used to hedge issuers of dual currency bonds against the foreign exchange risk embedded in them. Dual currency bonds have coupons denominated in one currency and principal in another. A dual currency swap contains the series of embedded options and swaps necessary to hedge the coupon payments into the issuer's required currency.

/index **floating-rate note**: Any **floating rate note** whose payoff is determined by the relationship between two underlying indices. An example is the CMT Libor differential **note** -- these pay a coupon of the type (10-year CMT minus six-month Libor) + 3.1%. A variant, the stepped dual index **floater**, pays a fixed first coupon before reverting to the dual index formula.

/index inverse **floating-rate note**: An FRN whose coupon or principal redemption rises as the spread between (of the average of) two **rates** falls. For example, an investor might believe that lira and peseta short-rates are unsustainably high. If so, they could purchase a note that redeemed at par + 10 x (8.70% -- average Lit/Pta 3-year swap rate). This version is leveraged 10 times: every 1 bp change in the average results in a 10 bp change in redemption value.

/option: A name sometimes given either to chooser options or to two-colour rainbow options.

/strike option: See contingent option.

Duration (Macaulay duration): The present value weighted average term to maturity of a fixed-income instrument expressed in years. It is calculated as the average life of the present values of all future cashflows -- both coupon and principal payments -- of an instrument, with the time delay until receipt of each cash flow weighted by the contribution of that cashflow to the total present value of the instrument. Duration is therefore shorter than maturity for most bonds. The higher a bond's duration, the more sensitive its price to small changes in yield. Excepting perpetuals and very long maturity bonds, the longer the maturity of a bond, the higher its duration and, for a given maturity, the higher the coupon, the shorter the duration. The maturity of zero-coupon bonds is equal to their duration.

/(modified): A related measure, modified duration = duration/1 + (yield/(coupon frequency x 100)). That is, it is the percentage change in price of an instrument per basis-point change in yield. For a 1% change in yield, an instrument with a modified duration of 1.5 will change 1.5% in price in the opposite direction. Modified duration is sometimes known as volatility.

/-enhanced note: Short-dated fixed-income securities which pay an enhanced coupon and incorporate a leveraged redemption formula indexed to shorter-term swap rates. Despite maturities of only two or three years, the sensitivity of these instruments to movements in short-term interest rates matches that of much higher duration bonds. The higher the degree of leverage, the higher the synthetic duration. The majority are launched from medium-term note programmes.

/matched hedge: A risk offsetting position constructed from a long position in one instrument, such as a government bond, and a short position in another instrument, such as an interest rate swap, which may have a

different maturity, coupon, yield to maturity and equivalent life to the first but which has an identical duration.

Dynamic hedging: Replication of the payoff of a portfolio long the underlying and long a put by continuous delta hedging. It started as a risk management theory of Hayne Leland and Mark Rubenstein on the back of the insights of the Black-Scholes model. It was used to provide put protection for equity portfolios at a time when portfolio puts were not available.

The theory assumed that an option position could be replicated by continuously adjusting the fraction of funds invested in the underlying equities with the remainder invested in a risk-free asset. An initial hedge of treasury bills was created, its size depending on the level of protection required. If the portfolio value fell, stocks had to be sold and the hedge position increased; the opposite had to be done if its value rose. The theory worked as long as volatility was predictable and low and while markets did not gap dramatically. Since it relied on a large amount of trading in the underlying, it also required liquid markets and low bid/offer spreads. The price discontinuity experienced in the 1987 crash caused such strategies to lose money and credibility. Also known as portfolio insurance.

See replication.

E

Elasticity: Properly a measure of the percentage change in the option premium for a 1% change in the asset price. Sometimes loosely used as a synonym for delta (delta strictly measures the absolute change in the option premium for a one unit change in the underlying). Because elasticity is usually significantly positive (a 1% change in the asset price generally gives rise to more than a 1% change in the option price) it is also sometimes used as a synonym for gearing. This is most common in the warrant market, where it is calculated as delta times the price of the underlying divided by the option price. See leverage.

Embedded option: An option implicit in another instrument. The commonest are: call options embedded in bonds, which allow the issuer to redeem the bond early; the options implicit in bonds with sinking funds; the embedded put provisions in some bonds, that allow investors to put the bond back to the issuer at a predetermined price; the caps in capped FRNs; the equity call options in convertibles and exchangeables; the mortgagee's prepayment options in mortgage-backed bonds; the options represented by attached debt or equity warrants; the currency options in dual-currency bonds and the debt or interest rate options in pay-in-kind bonds. Embedded currency, commodity, equity and interest rate options have become commonplace in both the private and public debt markets.

Embeddo: A bond containing an embedded option or, sometimes, the option itself.

Equity index:

/-linked note (EIL, ELN): A fixed-income security whose principal repayment (less commonly coupon payments) are linked to the performance of a single stock, an equity basket or, most commonly, an equity index. The formula for principal repayment can reflect a long, short or more complex option-related position in the index. Most equity-linked notes are capital-guaranteed and each bank has a name for its own offerings: protected equity-linked notes (PENs), index growth-linked units (IGLUs), protected equity participations (PEPs), protected index participations (PIPs), equity participation notes (EPNs) and guaranteed return index

participations (GRIPs).

/swap: A swap in which the (usually total) returns on an equity index, sub-index or customizable basket of equities, plus or minus a fixed spread, are exchanged for a stream of payments based on short-term interest rates, usually Libor. Typically both the index-return payments and the floating-rate payments occur monthly or quarterly. As with an interest rate swap, the payments are calculated on a notional principal amount that is not exchanged. The payment streams can be denominated in the same or different currencies. Quantized equity swaps have been popular with investors venturing into foreign markets for the first time and who do not want currency exposure. They also allow rapid asset reallocation with minimal transaction costs.

An equity swap is essentially a long-term equity future and so the cost of carry is crucial in pricing. The payer of the index return is short the index. To hedge this position he borrows floating rate, using the Libor payment stream he receives from the swap counterparty to service the loan, and buys the index. To fulfil his obligation to pay the total returns from the index, he pays out the dividends and capital appreciation he receives from his position in the index.

Equity option: The right but not the obligation to buy (call) or sell (put) an underlying equity instrument. Equity options are available on individual stocks, baskets of stocks (often related in geography or sector), and equity indices and sub-indices. Securitized versions in the form of listed and OTC warrants are also widely available.

Equity yield enhancement security (EYES): A security whose return is linked to a single stock but whose maximum return is capped. In exchange for the implied sale of a cap the investor receives a return that exceeds the stock's dividend.

Escalating (principal) swap: See accreting swap.

Escalating rate swap: An interest rate swap whose fixed-rate payments rise over time. Also known as a step-up coupon swap.

European-style option: An option which can only be exercised on expiration. See American-style, Bermudan-style.

Epsilon (E): See vega.

Exercise: Of an option, to put into effect the right to buy or sell.

Exchange option: An option giving the holder the right to exchange one asset for another. Used where there is no cross-market option, exchange options have largely been replaced or renamed: for example, the option to exchange one yield curve for another is a spread option.

Exchange rate agreement (ERA): A type of synthetic agreement for forward exchange (SAFE) that is settled on the spread between two forward foreign exchange rates instead of with reference to the spot rate.

Exchange-traded contract: A futures or option contract traded on an organized exchange by exchange members. Exchange-traded contracts tend to be short-term, standardized and limited in complexity though innovation is changing this. See over-the-counter, futures contract, Flex option.

Exotic option: Any option whose strike price calculations, determinations, payoff mechanisms or activation/expiration conditions produce a payoff more complicated than that of a vanilla put or call. Also used of options struck on an unusual underlying asset or combination of assets.



Expected value (EV): The pay-off of an event multiplied by the probability of its occurring. For example, the probability of rolling a six on one die is  $1/6$  or 16.67%. The EV of a game in which one is paid \$100 for rolling a six and nothing for any other roll is  $(1/6 \times \$100) + (5/6 \times \$0) = \$16.67$ . EV is a key concept in option pricing, since the calculation of option value relies heavily on probability theory. The present value of the EV of an option will be the same as its premium if it is fairly priced. The EV of an option is a function of the size of two things: the relevant distribution of probabilities for the underlying asset price (itself determined by time of expiry and volatility) and by the location of the distribution versus the strike price (determined by the relationship between the strike and the current implied forward rate). The former establishes the range of possible outcomes, the latter defines the pay-off value of each outcome. See Black-Scholes, distribution, delta, lognormal distribution, premium, rho, theta, vega, volatility.

Exploded tree: See binomial model.

Exploding option: An option which is automatically exercised when the underlying reaches the strike level. Often used as one element of a particular collar or risk reversal strategy in which as soon as the underlying trades through the strike price, the short option explodes (expires) and the long option pays out. See capped.

Extendible: Used of instruments whose life can be extended beyond an original term at the option of one or both of the counterparties.

/floater: An FRN, usually one-year, extendible to two or three years at the issuers option. For example, if the two-year swap rate were trading at 5.65% and the forward curve was implying rates of 7.5% an investor who wished to take a view against the pessimistic forward curve could buy a one-year extendible FRN under which he receives six-month Libor plus 50 bp for the first year. Then, if the two-year swap rate at the end of that first year is higher than 7.65%, the note will be extended a further two years and the investor's coupon would be fixed at 7.65%. Effectively the investor is selling a one-year option on the two-year swap rate at the forward rate (7.5%). If the investor had instead bought one-year paper paying Libor flat, the fixed reinvestment rate at the end of the year would have to be higher than 8% to outperform the extendible. See also index amortizing rate note.

/swap: A swap in which one counterparty has the right to extend a swap beyond its original term. Essentially therefore it is the combination of a vanilla swap with a swaption. Most commonly it is the fixed-rate payer who has the option. However, in the commodity markets, it is often the floating-rate payer. So an oil consumer who wishes to fix the price of his oil purchases can enter into a fixed-for-floating commodity swap under which he pays a fixed rate that is lower than the going swap rate and that is approximated his budgeted rate and in exchange grants the floating-rate payer the option to, say, double the life of the swap if the price falls below a certain point. If it does, the consumer is paying his budgeted rate and the option writer is benefiting from paying out a lower floating price than he is receiving fixed.

Extension swap: A forward start swap whose start date coincides with the termination date of an existing swap and which will automatically extend the original transaction.

Extrinsic value: That part of the premium that is not intrinsic value -- that is, the part of the value of an option made up primarily of its time to expiry, strike level and volatility.

F

Factor sensitivity: The impact on a derivative portfolio of movements in the underlying risk parameter of an individual product.

Fair: Of prices usually either the theoretical price an instrument should fetch or the no-arbitrage price.

/price: Of a future or forward contract, the price at which arbitrage between the derivative and the underlying asset just breaks even.

/value: Of an option, what the price of an option should be in an efficient market according to probability-type option models.

Fairway bond: See range **floating-rate note**

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Fairway swap: See accrual swap.

Finite difference methodology: An option pricing approach that falls into the category of numerical models. It is based on finding a numerical solution to the differential equation that the option valuation must satisfy. It does this by converting the differential equation into a series of difference equations which are then solved iteratively.

First generation structured **note**: Structured assets that generally contain only one **floating rate** index; where the maturity of the **floating rate** index must coincide with the reset and payment frequency -- eg three-month Libor coupons must be reset and paid quarterly; where the floating-**rate** index is of the same country as the currency of denomination (no quantization); and where no exotic options are embedded. In other words the index **rate** and discount **rate** of these **notes** are equal to each other and to the to-maturity Treasury **rate**. The commonest examples are FRNs; capped and floored FRNs; collared FRNs; inverse FRNs; superfloaters.

Fixed accrual **note**: A range **floater** with two fixed coupons, one payable if the underlying trades within the range and one payable if it does not. See range **floater**.

Fixed(-for)-fixed: Swaps in which both counterparties pay a fixed **rate**, a situation commonest in currency swaps.

Fixed(-for)-floating: Swaps in which a fixed-**rate** payment stream is exchanged for a payment stream referenced to a floating-rate index.

Fixed-rate payer: The swap counterparty that undertakes to pay fixed in a swap. Also said to be the buyer of or long the swap.

Fixed-rate reset swap: An interest rate swap in which fixed rate is reset at the cash rollover date.

Flex options: Exchange-traded options that allow the buyer to specify the style (American or European), strike, maturity, and notional principal of an option. This enables hedgers to eliminate the timing mismatch between hedge and underlying position that can occur with standardized exchange-traded product. They also avoid the gamma and vega mismatches which occur: for example, near-the-money options with a long time to run have high vega but little gamma whereas near-the-money options with little time to run have the opposite.

Flexi range floater: A range floater with a resettable range. At reset dates the buyer can adjust the range to reflect any changes in their view.

This new range must be the same width as the original. Because of this flexibility they pay lower coupons than vanilla range floaters. Nowadays these are usually structured with 100% principal guarantees and are either linked to a particular foreign exchange cross rate or an interest rate. Also known as a resettable range floater.

**Flex(ible) swap:** An interest rate swap under which the buyer receives a fixed rate and pays the higher of a lower fixed rate or Libor minus a pre-set spread.

**Floating(-for)-floating:** A swap in which both parties pay a floating rate. A floating-floating interest rate swap is known as a basis swap.

**Floating-rate payer:** The swap counterparty that undertakes to pay floating in a swap. Also said to be the seller of or short the swap.

**Floating strike option:** See moving strike option.

**Floor:** An option strategy that sets a floor on the holder's exposure to the underlying. In an interest rate floor, in exchange for a onetime upfront payment, the floor seller agrees to pay the buyer the difference (if positive) between the strike rate and the current rate at pre-set times over the life of the floor. This establishes a minimum interest rate for the holder -- typically, a lender needing protection against interest rate falls. A floor can be constructed from a series of single-period puts on an interest **rate** index or a series of calls on an interest futures contract or zero-coupon bond.

**/rate:** The strike price of a floor.

**Floor/ceiling swap:** See collared swap.

**Floored floating rate note:** An FRN with an embedded floor below which the coupon cannot drop. This gives investors protection against lower short-term **rates** but, since they must pay for the floor, this is at the cost of a spread to Libor (or some other index) below that on equivalent FRNs. The risk for investors is that rising rates push the floors out-of-the-money, leaving them with a note that underperforms vanilla FRNs. Many of the instruments were launched with deeply in-the-money floors to provide higher than market yields.

They perform best in environments in which the yield curve is steeply positive but in which rates actually fell (1991-1993 for example). This makes the floors cheap to buy at the outset and then means that they move handsomely into the money. Investors who mark-to-market should note that these bonds, like all notes that contain options, are price sensitive to changes in volatility. They are also extremely sensitive to interest rate movements when rates are at the floor strike.

**Floored put:** A put option position whose maximum payout is limited either by the incorporation of a barrier which when hit causes the option to be exercised automatically or by the existence of another option.

**Floorlet:** The name given to one of the series of single-period options from which a floor is constructed.

**Floortion/Floption:** An option which gives the holder the right but not the obligation to enter into a floor at a predetermined strike and premium on a specified date.

**Foreign exchange accrual note:** A range **floater** in which the range is set by an upper and lower value for a specific exchange **rate**.

Forward contract: An agreement to buy or sell a given quantity of a particular asset (usually currency) at a specified future date at a preagreed forward price. A forward is the OTC equivalent of a future. The difference between the spot price and the forward price is largely influenced by the cost of carry, that is, for financial assets, interest rates. The theoretical forward price of a carryable asset like currency contains no expectations of the future spot price since the seller of the contract can hedge by holding the underlying. However they may contain expectations of future interest rates, because the seller has to fund that position. Forwards are not generally traded but, if unwound, the value of a forward contract prior to expiration is the difference between the forward price at which the contract was agreed and the forward price that subsequently prevails in the market.

Forward band: See collar.

Forward curve: See implied forward curve.

Forward exchange margin: See swap rate.

Forward exchange rate agreement (FXA): A form of synthetic agreement for forward foreign exchange whose value at maturity is based on the difference between the forward rate on the start date and the spot rate at settlement.

Forward extra: A hedge position that consists of a vanilla FX option that becomes a synthetic forward contract if a trigger level (set out-of-the-money-forward) is reached at any time before the option expiry. For zero premium cost, the purchaser of the structure acquires protection for any adverse exchange rate move, at a rate that will be somewhat worse than the forward outright in exchange for the right to gain in a limited fashion from favourable moves in the spot rate provided that the trigger is not reached. If it is, then the hedger is obliged to transact at the unfavourable synthetic forward rate. For example, a hedger short dollars and long Deutschmarks at 1.5700 (forward 1.5673, volatility 9.8%) could buy a US\$ call/DM put forward extra struck at 1.5700 with a knock in at 1.5150. The net premium cost of the position is zero. If the spot trades above 1.5700 at expiry then regardless of whether 1.5150 has or has not traded, then the underlying is hedged at 1.5700. If the spot is below 1.5700 at expiry, then if 1.5150 has not traded then the underlying benefits below 1.5700, but if 1.5150 has traded then the holder of the position is obliged to buy US\$/DM at 1.5700.

The position is essentially a cross between an option and a forward, combining much of the certainty of the former with some of the flexibility of the latter. It provides protection while giving the potential to outperform the initial prevailing outright forward rate for no premium.

Forward-forward: In the foreign exchange markets, a forward sale/purchase of a currency against a forward purchase/sale. It involves the exchange of currency deposits.

/(interest) rate: An interest rate that will apply to a loan or deposit beginning on a future date and maturing on a second future date. For example, a 6s/12s forward forward is an interest rate agreement fixing the rate payable on a loan starting in six months time and maturing six months later.

Forward intrinsic value: The parity (intrinsic value) of an option plus the basis of the forward underlying it. In an efficient market a European option should not trade at less than its forward intrinsic value. FIV for a call is generally greater than the standard intrinsic value and less than it for a put.

Forward outright rate: The actual forward exchange rate used in a forward

contract.

Forward point: The number added to or subtracted from the spot exchange or interest rate to calculate a forward price.

/agreement: A swap agreement in which one counterparty pays fixed foreign exchange or interest rate forward points, fixed at the outset of the contract, and receives actual floating forward points at a pre-determined date in the future. The agreements can be cash settled or physically settled by entering into the forward at the fixed points directly on the repricing date.

Forward rate agreement (FRA): An interest rate contract for difference under which buyer and seller agree to exchange the difference between the current interest rate and a pre-agreed fixed rate, struck on the date of execution of the FRA contract. If rates have risen, then at maturity the purchaser of the FRA receives the difference in rates from the seller. If they have fallen, the seller receives the difference from the buyer.

FRA prices are quoted as interest rates on the basis of the bid and offer yield levels for the period of the FRA. The FRA rate itself is the implied forward rate for the relevant date. FRAs are labelled on the basis of the number of months to the start and end of the FRA. A three-month FRA starting one-month forward is a 1x4 FRA, a 3 v 9 FRA is trading the implied six-month Libor rate in three months' time. So if the 3 v 9 were trading at 6.90% and a corporate believed that in three months' time six-month Libor would be above 6.90%, then they would buy the FRA on their desired notional principal. Unlike interest rate futures, there are no up-front margin payments. FRAs are the building blocks from which swaps are constructed.

Forward rate bracket: A currency forward contract in which the buyer has limited participation in any favourable currency moves while retaining the downside protection of a standard forward contract.

Forward spread agreement: An FRA on the forward interest rate differential between rates in two different currencies (i.e. the spread between two FRAs in different currencies) applied to a nominal amount in one currency. The settlement amount is the difference between the current spread and the pre-agreed strike spread. This Diff FRA is the basic building block of a currency protected swap.

Forward (start) swap: An agreement to enter into a swap on a fixed future date at a prearranged price.

Fourchette option: French for fork option, a name occasionally applied to a number of types of options whose payout is contingent upon particular spread or range conditions being fulfilled.

Fraption: See interest rate guarantee.

Frequency density function: The height of the normal distribution curve at any point.

Frequency distribution: The distribution of the frequency with which the underlying asset changes price within a predefined period. Graphically, frequency is plotted against price change.

Front month (contract): The near month futures contract.

Futures contract: An agreement to buy or sell a given quantity of a particular asset at a specified future date at a pre-agreed price. Like forwards, futures differ from options in that they represent an obligation to buy or sell the underlying. Unlike forwards, they have standard delivery

dates, trading units and terms and conditions. They are available on a wide range of financial and commodity assets, generally expire quarterly and can be cash or physically settled. Most importantly, they are traded on exchanges which act as counterparties to all transactions and which run margining systems. Margin is the collateral futures traders must set aside against their positions. First, an initial margin must be deposited with the clearing house on entering a trade. Thereafter futures positions are marked-to-market daily and a variation margin is paid/received to maintain the required level of collateralization. The role of the exchange and the margin system significantly limit credit risk.

G

Gamma (character omitted): Mathematically the second derivative of the option premium with respect to the price of the underlying, gamma measures the change in the delta of an option for a one-unit change in the price of the underlying. If an option has a delta of 0.49 and a gamma of 0.04, the delta would be expected to rise to 0.53 if the underlying moved one unit in price. (This relationship is made more complex because gamma itself changes with movements in the underlying).

Gamma is vitally important to anyone hedging a portfolio of options because it is an indicator of the frequency with which a delta-neutral portfolio should be rebalanced. A position which is delta neutral but which has a high gamma will quickly become bullish or bearish on the direction of the underlying asset price. This results in changes in the value of the option position that are not exactly offset by changes in the value of the underlying asset. This gamma risk can be hedged only by trading options -- using an option or position with a gamma of  $-G$  to offset an option or position whose gamma is  $G$ . Gamma is highest for at-the-money options, particularly those close to expiry, and decreases the further away from the money the option is. This is because small price moves around the strike have much larger effects on the probability of the option expiring in the money, that is delta, than they would if the option was deeply out-of-the-money. Gamma also increases as volatility decreases for an option which is at-the-money. This is because high volatility increases the likelihood that an at-the-money option will be either in- or out-of-the-money while low volatility means a decrease in this likelihood. In the latter case, since the probability of the option expiring in- or out-of-the-many will increase with greater dependency on movements in the underlying a higher gamma will result. The unusual relationship between gamma and volatility means that even positions which are delta and gamma hedged are exposed to the risk that they will become unbalanced because of changes in volatility. Gamma is sometimes called the convexity of an option.

/trading: The buying and selling of options to ensure gamma neutrality and so delta neutrality.

Gap option: An option that enables the holder to hedge against or benefit from dramatic movements in the price of the underlying. A gap option on Libor might pay out a certain amount if Libor rises by more than 50 bp in the next month. It therefore has two triggers, the gap trigger (50 bp) and the speed trigger (one month). Gap options are difficult to hedge because of their sensitivity to the rate of change of the underlying price.

Garch: Acronym for generalized autoregressive conditional heteroscedasticity (Arch). A variation of the pure Arch that generalizes the univariate Arch models into allowing the whole covariance matrix to change with time instead of just the variance. Several other variations exist. See Arch.

Garman-Kohlhagen pricing model: The classic and commonly used extension of the Black-Scholes option pricing model to pricing currency options. Mark Garman and Steven Kohlhagen showed that much the same arguments apply to pricing currency options as apply to pricing stock options with adaptations to allow for the two interest rates and the fact that a currency can trade at a premium or discount forward depending on the interest rate differential. (The dividend yield is replaced by the foreign interest rate). Binomial models are used alongside Garman-Kohlhagen to price American-style currency options.

Guaranteed exchange rate: see currency protected.

Geometric Brownian motion: Describes the movements in a variable or asset price when the proportional change in its value in a short period of time is normally distributed. The changes in two non-overlapping periods of time are uncorrelated, hence the alternative name for the process -- random walk. The term geometric refers to the fact that it is the proportional change in the asset price (not the absolute level) that is normally distributed. This means that the future value of a variable following geometric Brownian motion has a lognormal probability distribution and is always positive, unlike a variable following a Wiener process, whose value can become negative. This makes it mathematically useful and consequently it is the most common assumption for the movement of stock prices, stock indices, currencies and futures contracts. It is the assumption made for stock prices in the original Black-Scholes options pricing model.

Geske-Johnson option pricing model: The Roll-Geske-Whaley model values call options on dividend-paying assets but is not applicable to American-style puts on such assets. Indeed there is no analytical solution. The Geske-Johnson model, an extension of the Roll-Geske-Whaley model, notes that there is a positive probability of early exercise of in-the-money puts which means that an American-style option can be viewed as an infinite sequence of options to exercise a European-style option. However, when the put is on an asset that pays dividends, the valuation procedure is simplified because it will not be optimal to exercise prematurely the option at any time near to but prior to an ex-dividend date. Because of its complexity, it uses trivariate normal density functions. Many market practitioners use binomial models instead.

H

Heath-Jarrow-Morton: A two-factor term structure option pricing model that uses all the information in the term structure and can handle multiple causes of term structure movement. This means that the returns on zero-coupon bonds of differing maturities are not assumed to be perfectly correlated (as is assumed, for example, by the Ho-Lee model).

The two factors or inputs into the HJM model are an underlying (in this case the entire term structure which is an input into the model in the same way that the current stock price is an input into Black-Scholes) and volatility -- that is, a description of how the term structure fluctuates over time. This means that the model does not have to assume that all bond prices (in fact the model uses stochastic forward rates not zero coupon yields) are perfectly correlated. Instead, it assumes a random term structure of interest rates and is designed to be automatically consistent with both the observed term structure and the volatility functions input by the user. As a result of using a multi-factor model of the term structure, the model employs a multinomial instead of binomial model of term structure movement.

The key difference between it and the spot rate models of Black-Derman-Toy, Vasicek, Hull-White and Cox-Ingersoll-Ross is that these models treat the

spot interest rate as the underlying variable. Besides the current spot rate, these models include various parameters used to describe the possible future paths of the spot rate. Since the current term structure is not a direct input, these models try to fit the term structure by searching for parameter values which cause calculated zero coupon bond prices to match the market.

Hedge: To offset the risks of one position by taking out an opposing position at the expense of potential reward.

Hedge-ratio: See delta.

Heteroscedastic: In simple linear regression, an error term compensates for the fact that in modelling the relationship between two variables, one of which is assumed to be the major factor in the movements of the other, movements in one will in fact be imperfectly described by movements in the other because of factors not captured by the regression model. This error term is normally distributed with a mean of zero and a constant variance so that its effects cancel each other out. If the spread of error terms is constant, it is said to be homoscedastic. If it is not, it is said to be heteroscedastic. See Arch.

High-coupon swap: A swap whose fixed-**rate** payments are above the market **rate**. The **floating-rate** payer may compensate the fixed-**rate** payer either by higher periodic payments or by payment of an upfront fee.

Hi-lo **floating-rate note**: a capped **floating-rate note** that pays a reference **rate** plus a significant spread until the cap strike is hit when it becomes a reverse **floater**.

Hi-lo option: An option which pays out the difference between the high and the low price or **rate** reached by the underlying over the term of the option. Constructed from a combination of a lookback call and lookback put, the buyer is taking a view that the volatility of the underlying will be greater than the implied volatility of the component options.

Historical volatility: The volatility in the underlying's price, rate or return over a specified period in the past, usually measured as the standard deviation of the natural log of the underlying price relatives. It is used as an indicator of future volatility and to check whether the implied volatility of an option is expensive standards.

Ho-Lee: The first whole-term structure option pricing model, proposed by Thomas Ho and Sang-Bin Lee in 1986. Using a discrete-time binomial approach this single-factor model incorporates the whole term structure rather than just changes in a long or short interest rate. Thus given the term structure as known today, in the next time period the whole term structure can move up or down. However, the model makes a number of assumptions not borne out by empirical observations: it assumes that the returns of zero coupon bonds of different maturities (which it uses to represent the term structure at each node on the binomial lattice) move in a perfectly correlated manner and it requires that all interest rates both spot and forward have the same volatility. It also allows for negative interest rates as it does not incorporate mean reversion. Unlike Black-Scholes-type models, Ho-Lee establishes no explicit link between hedging and pricing.

Homoscedastic: See heteroscedastic.

Horizontal spread: The simultaneous purchase of one type of option (call or put) and sale of the same type of option with the same strike price but a



shorter maturity. This trade will profit if the time decay on the short position is faster than that of the long. See diagonal, vertical spread.

Hull-White pricing model: A single factor model developed using a trinomial lattice. It is a yield-curve based model in the same mould as the Ho-Lee, Vasicek, Heath-Jarrow-Morton and Black-Derman-Toy models. A key feature of Hull-White is that it treats mean reversion as time-dependent.

Hybrid: An instrument whose returns depend on a combination of risk types or which has been constructed from several different instruments to produce returns which mimic those of another instrument.

/derivative: A derivative product incorporating two or more different risk types.

The commonest types are hybrid barrier caps and floors. Hybrid knock-in caps usually link foreign exchange rates and interest rates. For example, a Japanese exporter with large floating-rate debt outstandings might be very profitable when dollar-yen exceeds 105 but below 95 cash flow becomes critical and he requires interest rate protection. A normal five-year 7% cap might cost 364 bp. Instead they buy a five-year 7% cap which knocks-in when the dollar-yen rate hits 95. This reduces the cost of the cap by 160 bp. Hybrid knock-out caps are useful for commodity producers. For example a gas producer's profits usually rise with rising gas prices but fall with rising interest rates.

The company's nightmare is the combination of rising rates and falling prices. It could buy a standard cap, but is unwilling to pay so much in premium because it is really only the combination of factors that pose a threat. It does not want straightforward and expensive interest rate insurance. Instead the company can buy an interest rate cap that is knocked-out if the gas price exceeds a specified barrier in any quarter.

The strike and knock-out levels are set at the company's combination pain or breakeven threshold. The company pays floating interest rates only when it has profits with which to pay.

The knock-in or knock-out can be tied to almost any underlying index. For example, a UK-based company might wish to buy interest rate cover for some debt. However, it is contemplating floating off a large subsidiary in the next two years in which event it will not require the cap. Instead of buying a three-year cap at a cost of 339 bp, they buy a knock-out cap that knocks-out when the FTSE midcap index rises by 15%. This cap costs 140 bp less. As well as the lower premium, the cap will disappear at exactly the right time: when the company will be able to float its company or sell it at an attractive price and pay down its liabilities. The knock-out can either be permanent, as in these examples, or the cap can be structured so that it is only knocked-out for the period in which the outstrike is breached. If the underlying moves back through the outstrike, then the cap is reactivated, making it resemble a range transaction.

Hybridization has also been applied elsewhere -- for example a semi-fixed swap with the rate reset trigger dependent on the price of oil (a swap plus a binary oil option). See N-cap.

/security: In the context of derivatives, any complex security containing embedded swaps or options. Elsewhere, a security that combines the return, balance sheet and/or tax characteristics of both debt and equity.

I

Impact forward: A collared forward, usually constructed so that the purchase of the put option is financed by the sale of the call.

Implied correlation: The correlation component of the price of an option on two or more underlying assets. Multi-factor models can take historical correlation as an input or it can be reversed out of them if they are provided with the option price.

Also, less scientifically, the difference between the prices of otherwise identical first- or second-order correlation products given by different banks. For example, a spread option or outperformance option (both first order correlation products because their prices depend directly upon the correlation of the two underlying assets) may have the same maturity, strike and volatility but be priced differently by two different institutions.

One reason for this difference could be differing views on that correlation. If an option provider believes that the volatilities of the underlying assets are more closely correlated than recent historical spread volatility implies, he will price a spread option below the level chosen by someone with the opposite view, as a higher correlation means less risk and so fewer hedging costs.

In practice though, most providers post a wide bid/offer on such products, implicitly pricing in a high correlation on the bid and a low correlation on the offer. Implied correlation can also be stripped from currency options because these are options on a pair of assets not a single asset. The lower the volatility of the cross relative to the volatility of the individual components, the more highly correlated the two exchange rates.

Implied forward rate: A forward interest rate that can be implied from the par or zero coupon yield curves.

Not only do the expectations embedded in the yield curve indicate what the yields on varying maturities of fixed-income instrument should be, they contain all the information needed to calculate, say, the one-year rate in one year's time from the two-year rate.

The implied forward rates are calculated from the incremental period return in adjacent instruments on the zero curve or on the swap curve, since swap rates are mathematically equal to the weighted average of all FRAs. (NB: FRAs are determined from implied forwards, not vice versa.) These implied rates are not necessarily those forecasters believe will materialize, they are simply the rate that financial instruments 'predict'.

So, if six-month Libor is 5.00% (180 days) and three-month Libor is 4.00% (90 days) the implied rate for three-month Libor in three months' time must be 6.01%, since this rate satisfies the condition that an investor/borrower would be indifferent between receiving/paying 4.00% for three months and reinvesting/rolling over at 6.01% for a further 3 months, and receiving/paying 5.00% for three months.

The curve plotted by these rates, known as the implied forward curve, is steeper than the yield curve. That is, when the yield curve is positive, forward rates are implied to be higher than spot rates and in a negatively sloped curve forward rates are implied to be lower. The implied forward curve is crucially important since derivative products are priced off it, rather than the spot rate (even if they are struck with reference to the spot.) Therefore by definition, when using derivatives to profit from a market view, treasurers and investors must first compare their view with the implied forward. If they are the same, there is no opportunity to profit from a view. All speculative views on the market are only profitable if they differ from the implied forward.

A number of derivative instruments have been devised that modify the payout from their vanilla versions by allowing users to take advantage of a view

that differs from the implied forward, for example the Libor in arrears swap.

**Implied repo rate:** The short-term financing rate that will make a cash-and-carry arbitrage involving the cheapest-to-deliver bond break even. That is, a rate is equal to the return earned by buying the cheapest-to-deliver bond for a bond futures contract and selling it forward via a short position in the futures contract.

**Implied volatility:** The value for volatility embedded in the market price of an option. Since option pricing models normally require an input for volatility derive an option's price, they can use the market price of the option to derive the level of volatility implied in it. This represents the market's best estimate of future volatility and can be compared with historical volatility to determine whether this view has changed. In general, the higher the implied volatility, the higher the price of the option. Many option prices (particularly foreign exchange options) are quoted in volatility terms.

**In-option:** A barrier option which becomes a conventional option for its remaining life if the price of the underlying reaches a pre-set trigger price. Also called a knock-in. See barrier option.

**In-the-money:** An option is in-the-money if it has intrinsic value because the market price of the underlying is above (below) the strike price of a call (put). If an option is struck in-the-money, its strike price is more favourable than the implied forward rate or price prevailing. An in-the-money option has a delta greater than 0.50, an at-the-money option has a delta of 0.50 and an out-of-the-money option has a delta of between 0.00 and 0.50, though exotic options have more complex delta characteristics as they behave like bundles of options. See delta.

**Incremental fixed swap:** A pay-fixed swap in which the fixed-rate is only payable on a certain percentage of the notional of the swap -- the rest staying floating. The fixed portion of the swap increases with Libor according to a pre-set ratchet table. Because the IFS swap rate is not always paid on the full notional amount, it is much higher than vanilla swap rates. The IFS therefore appeals to floating rate borrowers who believe that rates will stay considerably below the level at which the fixed rate is payable on a large proportion of the notional principal (which would push the blended rate well above swap rates. The IFS therefore performs a similar function to an interest rate cap, in that it fixes a maximum cost of funds, but instead of paying an upfront premium, users pay for the insurance against catastrophic rate rises in the form of a higher swap rate. Also known as an index fixed swap, self-regulating swap. See blended interest rate swap, semi-fixed swap.

**Index amortizing note:** A note which mimics the performance of mortgage-backed products by amortizing according to a pre-set quarterly schedule that is linked to the level of a specific index, usually Libor or the PSA. As market interest rates increase (or prepayment rates decrease) the slower the notes amortize, and so the longer their average life. In this respect they behave like collateralized mortgage obligations (CMOs).

In some cases the amortization is all or nothing: after the first year the notes will be called in their entire if Libor has not risen by, say, more than 100 bp from the current level. The notes' coupon is fixed, and for the first year there can be no amortization. The coupon is set significantly higher than the prevailing yield on one-year notes. The investor is taking a view that future sharp rate rises predicted by the steep forward curve will occur. If they do not, then the note will amortize quickly (or be called after the lockout period) and he will obtain a higher yield than on

a vanilla FRN of the same life. The risk is that rates do rise quickly and the notes' average life extends, leaving the investor with a coupon fixed at levels that become more unattractive with every new rate rise. The notes behave oddly on a mark-to-market basis. In low interest rate environments interest rate volatility makes extension more likely and so pushes down the value of the notes. In high interest rate environments high volatility means a higher probability of lower Libor and so of amortization and a higher value for the note.

Index-amortizing rate swap (IAR): The commonest type of indexed principal swap (IPS), differing from the generic IPS in that the notional principal can only amortize. The IAR is a fixed-for-floating swap whose notional principal drops over its life as interest rates change (usually fall).

Originally these instruments grew from the mortgage swap market and the amortization schedule was designed to correspond to the expected timetable of prepayments on a pool of mortgages but now almost any amortization schedule is possible by agreement.

Typically one counterparty receives an above market fixed rate and pays a floating rate on a notional principal amount that amortizes at a rate determined by a chosen index. The fixed-rate receiver obtains this high coupon because he has effectively sold the fixed-rate payer an option to shorten the swap's life if rates move against him. The notional principal is generally fixed for an initial two-year period of the swap, known as the lock-out period during which time the buyer is protected against amortization. After that period, the notional amount of the swap will decrease as a function of the level of the index chosen.

Sample terms might state that if Libor remains below 5.0%, the swap will amortize completely. If it stays between 5.0% and 5.5% the swap amortizes by 75%. If it rises to between 5.5% and 6.0% the swap amortizes by 50%. Between 6.0% and 6.5% it amortizes by 25%. And above 6.5% the swap notional remains at 100%. The swap's maturity date is the point at which any remaining notional principal outstanding matures. And there is generally a clean-up feature: if the notional principal falls below 5% of the initial notional amount, the swap amortizes completely.

Originally, this type of swap appealed to investors who could link the amortization with indices of mortgage prepayment rates to create off-balance sheet investments that behaved like collateralized mortgage obligations.

This concept was then extended and used by more adventurous treasurers who wanted yield enhancement on their short-term cash investments in particular yield-curve environments. Instead of investing in, say, vanilla one-year paper, the treasurer can maintain three-month rolling assets at Libor flat and pay that floating stream into an index amortizing swap with a one-year lock-out and a final maturity that represents the maximum period for which he is comfortable locking in his funds. As Libor decreases, the amortization speeds up.

For the lock-out period, the treasurer earns an above-market rate on his assets. In return for this, after the lock-out period he accepts that, if Libor declines, instead of benefiting from paying less into the swap and receiving fixed on the full notional amount, the swap will amortize, forcing him to reinvest the freed-up cash at lower rates.

These swaps are usually structured so that as long as the amortization falls in a range between zero (the swap matures on the full original notional amount) and 100% immediately after the lock-out period, the treasurer achieves an above-market yield as well as a flexible medium-term

investment vehicle. Because amortization is expected, the swap performs rather like a money market instrument after the lock-out period and provides cash liquidity as it amortizes. The swap works best in a steep yield curve environment.

Finally, the liability management potential in a steep yield curve environment became clear. If the treasurer believes that short rates will not rise by more than, say, 100 bp in the next two years, an alternative to the vanilla swap is the index amortizing swap. For the two-year lock-out period, the floating rate that the treasurer must pay into the swap can be up to 50bp less than he would have to pay into a vanilla swap of the same maturity. Second, after the lock-out period, the notional principal on the swap will amortize 50% as long as Libor does not rise more than 100bp, so that the treasurer's net position -- existing liability plus swap -- reverts gradually to a fixed-rate liability.

The transaction makes sense in yield-curve environments where the blended rate created by the transaction is cheaper than the vanilla swap for the full term of the liability, a vanilla swap for part of the remaining life of the liability or a cancelable swap.

The danger is that the treasurer's prediction that Libor will rise no more than 100bp might be significantly mistaken. If the rise is severe enough, no amortization will be triggered and the treasurer will have to remain a floating payer for the remaining life of the liability. However, this floating rate will still be less than that payable under the vanilla swap.

IARs -- or rather the fixed-rate pay side of an IAR -- has positive convexity through the effective sale of an embedded option that triggers amortization of the swap if interest rates fall. This means that are popular as a way of offsetting the negative convexity of mortgage-backed securities which are affected by prepayment when rates decline. Most have had maturities of less than three years to maximize the amount paid on the fixed leg. See blended interest rate swap, incremental fixed swap, index principal swap, Libor regulating swap, semi-fixed swap.

Index fixed swap: see incremental fixed swap.

Indexed strike caps: An interest rate cap whose initial strike price is reset upwards if interest rates rise the rough a pre-set trigger level. For example a 7.50%/8.50% indexed strike cap with an index strike of 9% will behave like a 7.50% cap as long as rates stay below 9%. If they reach 9% then it will reset and behave like an 8.50% cap.

Indexed principal swap (IPS): A fixed-for-floating swap whose notional principal can accrete or amortize according to a predefined index, such as Libor, CMTs or a mortgage prepayment index such as PSA rates. The fixed-rate payment is higher than would be payable on a swap with a fixed notional principal and the amortization rate generally decreases when rates rise and increases when they fall. The commonest type is the mortgage replication swap. The commonest types of IPS have a notional principal that can only amortize and which amortizes more quickly as rates fall. These are known as index amortizing (rate) swaps (IARs). If their notional principal amortizes faster as rates rise, they ore known as reverse indexed principal swaps. In the latter case the swapper gives up yield in exchange for the desirable characteristic of positive convexity. Most IPSs and IARs have a clean up feature: if the notional principal falls below 5% of the initial notional amount, the swap amortizes completely.

Installment option: An option paid for by instalments at regular intervals. The purchaser can elect not to make a payment, in which case the option is terminated. The holder effectively has a string of extendible calls on a

put. They are more expensive than standard options but only by the financing costs of the premium and only if all payments are made. Also known as a rental option since if the holder misses a payment, the option is repossessed. Useful where protection is required (put) but market view is bullish. Protection can be terminated before full payment has been made. However, total premium is more expensive than for a standard option if all instalments are paid.

For example, a company might have sold a three-year **floating-rate note** that the buyer can put back under certain circumstances. In return for this embedded option, the company receives a significant discount on its coupon payments. The company is not very happy with the interest rate outlook and thus want to hedge this floating rate exposure. A normal three-year quarterly cap with a 7.35% strike would cost 174 bp. However, should the loan be called, the interest rate hedge will no longer be required. They therefore decide to enter an installment cap which would cost 23 bp per period (the rental payment). The company can simply terminate the cap when desired by ceasing to make installment payments. This scenario can be of use when the underlying note gets called, or when it the company decides it no longer requires the protection of the cap.

The price of the option will depend on the termination date of the option and so the number of installment payments made. If used for the whole original maturity it will be more expensive than an vanilla option. Also known as an installment option, rental option. See contingent premium option, deferred premium option, mini premium option, part contingent option, pay-as-you-go option.

Instrike: The barrier price of an in-option.

Interest rate basket option: An option on a basket of interest rates designed to reduce overall interest costs across a number of different markets. For example, a borrower may believe that his European interest rate bill would rise more than is implied in the market but is unwilling to fix in case his view is incorrect. Instead of purchasing a series of options on the individual market, he wants an basket because the mix of Northern and Southern European currencies exhibit some negative correlations that will reduce the premium cost. He could buy a one year 8% strike basket option denominated in his base currency with the underlying the average two-year swap rate in the chosen currency. If the average rate rose above 8% this hedger would be protected. The sensitivity of the basket would be similar to that of a basket of payer swaptions. (An investor would buy the product if he wanted a customized, balanced exposure to a region and is prepared to accept a degree of upside limit.)

Interest rate guarantee: An option on an FRA giving the holder the right but not the obligation to purchase an FRA at a predetermined strike. A cap can be thought of as being constructed from a string of interest rate guarantees. Also known as a fraption.

Interest rate swap: An agreement between two counterparties to exchange cash on a notional principal sum which is not exchanged. The commonest structure is the fixed-for-floating swap in which one counterparty agrees to pay a fixed rate over the term of the swap in exchange for a floating-rate payment payable by the other counterparty.

A typical hedging application would be a corporate treasurer with \$ 1 billion of US dollar outstanding floating rate debt who believed that dollar interest rates were set to rise. To increase his level of fixed-rate debt and protect himself against rate rises, this treasurer could enter into a fixed-floating semi-annual swap on \$500 million notional principal under which he would pay a fixed rate (the swap rate) and receive a

floating rate lined to an index such as Libor. Every six months, a net interest payment is made between swap counterparties. If the prevailing level of dollar Libor is higher than the fixed rate (the swap rate) then the swap counterparty pays the treasurer the difference. If the swap rate is higher than Libor, the treasurer pays the counterparty the difference. This netting process fixes the treasurer's interest rate.

The swap can be reversed at any time. The unwind valuation is the difference between the present values of two sets of cashflows: that of the future cash flows payable/receivable under the swap and that of the cash flows for a matching but offsetting swap.

The market is effectively buying the right to continue the swap on its original terms. If these are better than the current terms then the swap has positive value. On a five-year swap that had run for one year, the comparison would be with a current four year swap. If the implied forward curve had shifted up sufficiently for the current four-year swap rate to exceed the original five-year swap rate, then the swap would have positive value as the market would be able to buy the (now higher) stream of Libors for the old (lower) price. The vanilla fixed-for-floating interest rate swap is also sometimes called a coupon swap since it can be viewed as swapping the coupons from two bonds with the same principal. A swap, viewed from the pay fixed side, can be considered either as a portfolio of FRAs all with the same strike or as a portfolio which is short a coupon bond and long an FRN or, alternatively, as the combination of a cap and floor with the same strike.

Swaps are actively traded and are generally quoted on a yield basis, that yield being the yield to maturity that equates the present value of the fixed side to that of the floating side. Quotes generally refer to the fixed leg or coupon. So, for example, a five-year dollar swap quoted at 60 bid 65 offer means that a counterparty wishing to pay fixed and receive Libor flat would have to pay the marketmaker a fixed rate which is 65 basis points over the yield to maturity of the five-year US treasury at the time the swap is initiated. If he wanted to pay Libor and receive fixed, the counterparty would receive a fixed-rate of 60 bp over. So, the swap bid is the price at which a counterparty will "buy" a stream of Libor-linked cash-flows and the offer is the price at which they would "sell" a stream of Libor-linked cashflows.

Swap pricing depends on the term structure of interest rates, the swap spread, transaction costs and credit risk. There is generally no upfront premium for a swap, as at the outset of the swap both parties are theoretically indifferent as to whether they are in fixed or floating: the net present value of the two payment streams is zero. Since the price of an interest rate swap is the level at which the market is indifferent between paying a fixed rate or interest and a stream of Libor, it depends entirely on the implied forward Libor rates. This means that a hedger must, before he decides to fix, determine whether he believes rates will rise as far as the implied forward curve implies. In other words, if a treasurer is paying Libor + 50bp on a five-year loan, he can only swap this into the five-year swap rate plus 50bp. He cannot simply fix at current spot rates. In steep yield curve environments, where the implied forward curve is even steeper, fixing will incur significant negative carry. Entering into swaps without any underlying asset or liability position, or putting on swaps whose notional principal amount exceeds any underlying position is generally regarded as speculation though clearly switching from fixed to floating does itself imply some form of view taking on interest rates.

**Intrinsic value:** The amount by which an option is in-the-money and so the cashflow that the holder would realize if he exercised it.

**Inverse floater swap:** An interest-~~rate~~ swap under which one

counterparty pays fixed and receives a **floating rate** indexed negatively to a reference index such as Libor. As Libor rises, the fixed payer would receive less; as it falls, he would receive more.

**Inverse floating rate note:** An FRN whose coupon rises as a **floating** reference **rate** falls and whose coupon quickly declines in a rising **rate** environment. A typical coupon is calculated as a fixed **rate** minus a **floating** reference index. An example might be 7.5% minus three-month Deutschmark Libor. The **notes** generally contain a proviso that the coupon cannot become negative. This means that investors have purchased a cap whose strike is set at the level of Libor that will produce a zero coupon -- that is, it is struck at the fixed rate element. If rates rise beyond this strike, producing negative coupons, then the long cap makes up the difference back to zero. The notes suit investors who wish to obtain a high initial yield in an upwardly sloped yield curve and to benefit if rates fall. It is another structure that allows investors to bet against the occurrence of the rates implied by the forward curve -- an expression of the belief that although the yield curve implied higher forward rates in future, the underlying economy implies the opposite. Investors should note that in this type of FRN, Libor resets in a rising rate environment will cause the bond to fall in value, not to reset its value to par and once the coupon is zero, the bond will trade at a discount with the duration characteristics of a zero coupon bond.

The inverse floater is constructed synthetically from an FRN and an interest rate swap of twice the notional size and leveraged further by increasing the amount of the swap.

Variants of the structure include a step-up constant (7.5% minus three-month Libor for the first six months, 8.5% minus three-month Libor for the second six months and so on) and also a fixed above-market first coupon followed by the inverse formula. **Notes** may be denominated in one currency and indexed to Libor in another (quantized). Also called the reverse **floating-rate note**.

**Interest-only strip (IO):** A **security** whose cashflows are derived only from the **interest** element of the underlying bond from which they have been stripped. The commonest varieties are stripped either from fixed-rate government bonds. Because they are effectively zero coupon bonds with a maturity and duration equal to the time to the coupon payment they represent, they are more sensitive to movements in interest rates than the underlying bond. Those stripped from mortgage bonds are different. They accompany POs, have no principal value and are sold at a deep discount to a notional principal amount which is used to calculate the amount of interest earned. The IO tranche only pays interest on the remaining PO balance that accompanies it. Heavy mortgage prepayments reduce the PO tranche to zero and so end the lives of the IOs. This means that mortgage IOs have substantial negative duration -- they rise in value as rates rise -- and are useful as a way of lowering portfolio duration in times of rising rates without selling securities at a capital loss. However, their option-like characteristics (the deeply discounted price of an IO is like the premium for a call option on rising or stable rates and, like an option, if rates fall, the IO can expire worthless) and their illiquidity make them unsuitable for most portfolios. IOs and POs are often called mortgage derivatives because of these option-like characteristics.

**Investor's choice FRN: A floating-rate note**

that pays a conditional coupon. Investors are asked to guess the level of Libor in the upcoming period. If their guess falls within a predetermined range, then they receive an above market coupon. If it falls outside the range, they receive nothing.



## J

**Joint option:** Quantos freeze exchange rate exposure and thus any upside gain. Joint options hedge both forex and underlying exposures allowing forex upside gain if the investor's currency strengthens. See linear forex swap.

**Jump diffusion process:** The process proposed by Robert Merton whereby the price of the underlying neither simply jumps nor follows a pure diffusion process but moves by a combination of a jump followed by continuous diffusion. Option pricing models have been extended to incorporate these kinds of jump price dynamics with directional bias but there are still theoretical problems associated with jump diffusion models. For example, the underlying asset in a foreign exchange option is an exchange rate which can be denominated in either of two currencies. However, jump diffusion models do not give the same prices when compared in a common currency.

**Jump process:** A stochastic process for movements in the price of the underlying proposed by John Cox and Stephen Ross. In it the price of the underlying does not follow the pure diffusion process assumed by the Black-Scholes model but rather jumps from one point to another in steps larger than traditional random processes would generate. This idea was expanded in the Cox-Ross-Rubenstein binomial model.

## K

**Kappa (Character omitted):** The effect on option premium of small changes in the short-term discount rate. Also used in the US for what is more commonly known as the vega of an option.

**Knock-in:** See barrier option, hybrid derivative. Also known as an in-option.

**Knock-out:** See barrier option, hybrid derivative. Also known as an out-option.

**/with rebate:** a knock-out option that makes a small payout to the buyer if it is knocked-out and becomes worthless.

**Kurtosis:** Specifically, the sharpness of a peak on a curve of a density function especially in comparison with that of a normal density with the same variance. More generally, a measure of how fast the tails of a probability distribution approach zero relative to a normal distribution. The extent to which the kurtosis of actual price distribution differs from that of the normal distribution is important in pricing and trading options. Models which do not take kurtosis into account will misprice options. Also, traders can take views on kurtosis. For example, those who consistently sell strangles are implicitly betting that the market has overestimated the kurtosis of the true probability distribution.

The complex payoffs of some exotic options can be viewed as bets by their purchasers that the actual probability distribution of the underlying is different from the normal or slightly modified normal distribution the marketmaker uses to hedge his book against outright moves in the underlying.

For example, the buyer of an up-and-out call does not believe it likely that the underlying will reach the knock-out level. He has created his own skewed probability distribution. According to the marketmaker's normal distribution, the probability that the knockout will be hit is considerably higher than that assumed by the investor's personal distribution, so the

marketmaker will sell the knock-out call more cheaply than the standard call.

/coefficient: The measure of kurtosis. A kurtosis coefficient less than that of a normal distribution indicates a distribution with a fat midrange on either side of the mean and a low peak -- called platykurtotic (broad tailed). A kurtosis coefficient greater than that of a normal distribution indicates a high peak, thin midrange and fat tails -- called leptokurtotic. The latter is commonly observed in financial price and rate data.

L

Ladder option: A path-dependent option whose strike price is periodically reset when the underlying trades the rough specified levels. Some ladder options reset in both directions, others only in one direction. These options are useful not only for investors but also defensive corporate treasurers who do not like the inflexibility of European-style options but who do not want to have to worry about the theory of the optimum time to exercise American-style options. So a ladder call on the dollar-Deutschmark rate with a strike of 1.65 might reset the strike every five pfennigs up to a maximum of 1.80 and have a payout of the greater of (i) the closing spot less the original strike and (ii) the highest rung reached less the strike. So, every five point gain is locked in and the strike is reset to that rung. If the rate then falls back, the gain remains locked in, but the strike is reset. The more frequent the resets, the more like a lookback option it is. Other ladder options have only a minimum settlement level: once the underlying has risen by, say, 10%, that gain is locked in regardless of the future path of the underlying price. If it subsequently rises above 10%, the investor still participates, but he also has a floor at 110. In exchange for this downside protection the maximum return is generally capped. A ladder call option can be viewed as a call struck at the ladder option's strike price, plus a series of bought knock-in put options each struck at a ladder level and a series of sold knock-in puts with strikes staggered one rung behind the purchased options.

For example, a ladder option on an index struck at 160 with a final rung at 175 would involve the purchase of knock-in puts struck at 165, 170 and 175 and the sale of knock-in puts at 160, 165 and 170. If the index went to 175 and then back to 160 the investor would be due the 15 profit. This is produced by the 30 points of profit from the long positions less the 15 points of loss from the short positions.

Lambda (Characters omitted): See vega.

Least squares regression: One of a number of types of regression analysis that measure the relationship between variables.

Lender option: A floor on an FRA.

Leptokurtosis: See kurtosis.

Level payment swap: An interest rate swap that converts the cash flows from an amortizing debt instrument or index into a fixed-swap payment.

Leverage: The ability to control a large nominal amount of an underlying asset with a relatively small amount of capital. Futures and options are leveraged because with relatively small downpayments (of margin or premium) the buyer gains exposure to large amounts of the underlying. See gearing, elasticity.

Leveraged: When used of derivatives or structured notes 'leveraged' indicates that the instruments' payoff formula includes a multiple of some

underlying index or asset price. In general this is achieved using embedded swaps or options whose notional principal is greater than the nominal principal of the bond.

The written agreement between Bankers Trust and the New York Fed in the light of the corporate losses of, among others, Gibson Greetings and Procter & Gamble defines leveraged derivatives transactions (LDTs) much more broadly as "a derivative transaction (i) in which a market move of two standard deviations in the first month would lead to a reduction in value to the counterparty of the lower of 15% of the notional amount or \$10 million and (ii) for notes or transactions with a final exchange of principal, where counterparty principal (rather than coupon) is at risk at maturity, and (iii) for coupon swaps, where the coupon can drop to zero (or below) or exceed twice the market rate for that market and maturity, and (iv) for spread trades that include an explicit leverage factor, where a spread is defined as the difference in the yield between two asset classes." This definition means the reclassification of many previously plain vanilla transactions as LDTs.

/capped **floater**: A **floating rate**

**note** that behaves like a normal FRN when Libor (or another index) is below a predetermined strike. Once the index rises above that strike, the **note** behaves like a leveraged inverse **floating rate note**. So the schematic coupon is:  $\text{Libor} + a$  if  $\text{Libor} < \text{strike}$ ;  $B - m \times \text{Libor}$  if  $\text{Libor} > \text{strike}$ . The equivalent investor position is long an FRN, short  $(m + 1)$  Libor caps at the initial strike, and long  $(m)$  Libor cap options at the higher strike. (Where  $m$  is the leverage factor). A typical actual formula might be the minimum of  $\text{Libor} + 30\text{bp}$  and  $28.45\%$  less  $(3 \times \text{Libor})$ . These instruments work best in a steeply positive yield curve environment: in that case the caps are priced off the even steeper implied forward curve (and so raise a large amount in premium) and Libor has to move significantly above implied forward rates before the investor's guaranteed pickup is threatened by the formula. The enhanced leverage means that the coupon is extremely sensitive to rising rates and the coupon rapidly drops to zero once the strike level has been exceeded. Such instruments are normally floored to prevent coupons from becoming negative.

/bond: A general term used to describe any bond or note whose payout to investors is determined by a formula that is based on a multiple of the increase or decrease in a specified index such as Libor. For example, a coupon of  $1.5 \times 10\text{-year CMT} + 150 \text{ bp}$  would be leveraged while one of  $0.5 \times 10\text{-year CMT} + 250 \text{ bp}$  would be deleveraged as the multiplier is less than one.

/diff floater: A combination of a leveraged FRN with a differential swap. A typical example would pay  $2 \times (\text{three-month Deutschmark Libor} - \text{three-month dollar Libor})$  minus a spread. Again, to prevent negative coupons, floors are usually incorporated. Because of the quanto element of the **note**, these have to be cross-currency options.

/**floater**: An FRN whose coupon rises as **rates** rise but in a ratio greater than 1:1. For example, a leveraged FRN might pay a coupon of  $2 \times (\text{six-month Libor} - 7.09\%)$ . The coupon is floored at zero. The investor is effectively long an FRN of twice the notional principal of the leveraged floater and short a fixed-rate bond whose coupon is the fixed-rate element of the formula. The investor is also long floors to prevent negative coupons. The two-times leveraged floater is the mirror image of the inverse floater.

/inverse floater: An inverse FRN whose coupon, instead of moving one for one with the reference index, multiplies the effects of any movement

several times. So, for example, a leveraged inverse floater might have a coupon such as  $12.5\% - [2 \times (\text{Libor} - 6\%)]$ . In this case, for every 1% fall in Libor, the coupon of the bond rises by 2% and for every 1% rise in Libor the coupon falls 2%. Since a standard inverse floater is created from an FRN combined with a swap of twice its notional principal, this structure uses a swap of four times the notional principal. The coupon is floored at zero -- though the investor has actually bought interest rate caps whose strike is set such that the investor is compensated for rate rises that push the coupon below zero and make up the difference.

Inverse floaters have become somewhat notorious in the US because of their association with the mortgage-backed market. Floating-rate CMOs and mirror companion inverse floaters sustained heavy losses in the interest rate rollercoaster of the last 12 months. Because the floater + inverse floater package must equal the underlying pool of fixed-rate mortgages they are backed by, the floaters carry a maximum interest rate which is dictated by the zero floor on the inverse floaters. In other words the floaters are short the cap embedded in the inverse floaters. Failure to value or appreciate the effects of this also led to significant losses on the floaters.

/swap: A swap in which the fixed-rate receiver receives an above-market fixed rate and pays a multiple of the floating rate index. Although leveraged swaps have had a very bad press in the light of the corporate losses of 1994, it is worth pointing out that such swaps are little different from vanilla transactions. For example, a hedger/investor who believes that the future spot rate will be lower than the rate implied by the forward curve can simply receive fixed and pay floating under a swap. To make this more speculative, he can transact such a swap on twice the notional principal of his liabilities. If he is constrained by internal guidelines on notional principal, he can substitute a leveraged swap under which he pays two times the floating rate but on the same notional principal as the original swap. If he wants to be even more speculative he can multiply this leverage or even enter a swap in which he receives a very much off-market fixed rate and pays Libor-squared. Since Libor-squared rises faster than the higher Libor is, this is extremely speculative. However, the point is that leverage itself is not as useful a concept in risk management as it might seem. Internal controls should focus on the potential cash flows that might arise from transactions, the mark-to-market value of such instruments and the factors that affect that and the value at risk of the portfolio.

Libor: the commonest **floating-rate** reference index used in interest **rate** derivatives.

/enhancement accrual **note**: A range **floating-rate note** that pays an above market **floating-rate** coupon every day that Libor remains within a predetermined range. This range is frequently stepped so that every three or six months, one or both of the boundaries is refixed. In a positive yield curve usually it is the upper limit that is moved up. Investors in these notes are taking both a directional view on interest rates as well as a volatility view. Those who have to mark-to-market should note that the embedded short binary options position is complex to value and extremely sensitive to volatility, especially when the boundaries are being approached. For example, if Libor has traded through the lower boundary, the note will actually gain in value if Libor or the forward rate then reapproaches the lower boundary, while the same rise just below the upper boundary will have the opposite effect. The note will begin to lose value even before forward Libor crosses this upper limit as the binary option, which the investor is short, has a non-zero delta and 50 increases in value as it reaches the strike. Binary options also have larger vegas

than other options, which increases the volatility risk of the notes. In high rate environments in which the yield curve is steep, the notes rapidly approach the value and duration of a zero coupon instrument.

**/-in-advance swap:** An interest rate swap in which the Libor rate is reset at the beginning of the previous period except for the first period where Libor is set at the beginning of the corresponding period as in a conventional swap. This effectively shifts the floating Libor periods back by one period except for the first. While the Libor-in-arrears swap is conventionally used to give fixed-rate receivers a higher fixed rate in return for Libor-in-arrears in a steep yield curve environment, the Libor-in-advance swap allows the fixed-rate payer to pay a lower fixed rate in exchange for receiving Libor in advance in the same type of interest rate environment.

**/(set)-in-arrears swap:** One of a class of interest rate swaps whose floating-rate leg is customized through manipulation of the reset dates on which rate fixings are made. In a conventional swap, floating interest payments are reset in advance, at the beginning of each (usually semi-annual) period and paid in arrears. So the six-month Libor rate payable in six months' time is determined by the Libor rate in effect at contract origination and paid at the end of the six-month period. At the 12-month settlement, the coupon payment is determined by the six-month Libor rate prevailing at month six and so on.

In a Libor-in-arrears swap, interest payments are both set and paid in arrears. That is, the first Libor fixing is after six months, just two days before the payment date, and is determined by the six-month Libor rate in effect at month six (not at contract origination) and subsequent rates are set at the end of each period. So, with a standard swap both parties know the amount of the floating-rate payment six months in advance. With the Libor-in-arrears swap, neither party knows what the payment will be until it is due.

This effectively extends the floating-rate payer's exposure to Libor by one additional interest period and means that the forward rates that are used to determine the fixed-rate payment in the swap are one period further out than on a standard swap. If the yield curve is steeply positive, this means that the fixed-rate for the Libor-in arrears swap will be higher than for the standard swap because the forward rates are higher.

Another way of looking at it is that the market is implying that short-term rates will rise. Therefore the market expects that setting Libor in arrears will result in a higher Libor being set and therefore a higher payment than if Libor is set normally. Therefore the market will pay an incentive to any counterparty that wishes to pay Libor in arrears. So, if the market is expecting Libor to be on average higher at the end of each six-month period by 50 bp, then in a floating-floating Libor-in-arrears swap a counterparty could receive Libor and pay Libor-in-arrears less 50 bp. The swap would be advantageous if Libor falls over the period or rises by less than 50 bp.

This shows how the swap is priced: the market expects Libor to rise 50bp over each floating period and so is willing to receive Libor-set-in-arrears less 35 bp. The price adjustment is therefore the present value of the average expected increase in Libor over the period, calculated from implied forward Libors for that period.

Libor-in-arrears swaps are a way of taking a view that future spot rates will be lower than those implied by the forward curve, though the buyers view on absolute rates may not be much different from that expressed by a conventional swap. If interest rates do not rise as sharply as the yield curve suggests, the Libor payments will be less than those on a

conventional swap can be fixed-for-floating or floating-for-floating. Most commonly they are used by fixed-rate receivers (for example, treasurers swapping fixed-rate bond issues into floating) who benefit from the steepness of the yield curve by paying Libor-in-arrears in exchange for a higher fixed rate. Floating-floating versions are sometimes used by investors who would receive Libor and pay Libor-in-arrears if they believed rates will not rise as fast as the implied forward curve suggests.

There are a number of more recent variants of the structure. In a less aggressive version of the Libor-in-arrears swap, counterparties can choose to receive a fixed-rate and pay floating with the option to pay Libor-in-arrears (and receive a higher fixed rate). The fixed-rates payable will be lower than that in the full Libor-in-arrears swap to take into account the cost of this option. Alternatively, if the counterparty wants to take a more aggressive view on the forward curve than in the standard Libor-in-arrears swap, he can choose to receive an even higher fixed rate than in the Libor-in-arrears swap in exchange for agreeing to pay the greater of six-month Libor and six-month Libor in arrears. This floating rate liability could be capped at a catastrophe level.

Also known as an arrears (rate) reset swap or delayed Libor reset swap. See implied forward, zero premium cap.

/function swap: An interest rate swap to whose floating-rate leg a customized mathematical function or equation has been applied to produce a payout profile tailored to a very specific view of rate movements.

/regulating swap: An interest rate swap under which one par receives Libor and pays a blended rate calculated as the combination of a predetermined fixed rate and a predetermined floating rate. The blended rate is capped at a maximum.

For example, a treasurer that could pay fixed at 6.71% in a three-year semi-annual swap could instead elect to enter a \$100million Libor regulating swap in which they receive six-month Libor and pay the minimum of  $(6.90\% + \text{six-month Libor})/2$  and 7.75%. So, if the average of the fixed and floating rates stayed below 7.75%, then the treasurer would pay the blended rate. If that average were above 7.75%, his fixed-rate payments would be capped at 7.75%. In this example, the blend of fixed- and floating-rate is set at 50:50. This proportion can be customized according to the hedger's views. The swap is constructed from a swap and cap, each for the requisite proportion of the original notional amount. In this example, the swap can be imagined as two swaps, each on \$50 million of notional principal. One is a 6.90% pay fixed receive six-month Libor swap, the other a pay six-month-Libor receive six-month Libor. The second swap clearly cancels itself and so the treasurer has simply fixed \$50 million at the off-market rate of 6.90%. However, assuming he actually has a liability of \$100 million on which he must pay Libor, that leaves \$50 million of the original exposure unhedged. For the actual blended rate not to exceed 7.75%, a cap on that \$50 million floating portion is needed at 8.6% --  $((7.75 \times 2) - 6.9)$ . The cap premium is the difference between the swap rate (6.71%) and the fixed rate portion of the blended rate (6.90%) so that no upfront premium is required.

In a positive yield curve environment the treasurer's cost of funds will be lower than a regular swap (but higher than Libor). Also, the maximum rate is known in advance, though it will be higher than the current market swap rate. Like many other second generation swaps, this instrument is for treasurers who wish to hedge against rate rises but who feel that the current yield curve and implied forward curve overstate future rate rises. See blended interest rate swap, incremental fixed swap, index amortizing swap, index principal swap, semi-fixed swap, Libor-in-arrears swap.

/squared swap: See leveraged swap.

Limit binary option: An option (usually FX) in which the purchaser specifies two exchange rates, one above and one below the current spot or forward rates, and receives a fixed multiple of the premium paid if both levels trade. This is almost the opposite of the range binary option since both levels must be hit for the buyer to profit while with the range binary if either limit is reached the buyer loses. See boundary binary option, corridor option, digital option, range binary option, range floater.

Limit-dependent option: Options whose payout is determined in part by a mechanism that serves to activate or deactivate the option as a function of the level of the underlying asset. The two classes are barrier/trigger options and digital/binary options.

Limited risk differential swap: A differential swap combined with a cross-currency cap/floor. The combination allows the user to benefit from the interest rate differentials between two currencies while capping/flooring the maximum loss incurred if the differentials move adversely.

Linear forex-linked swap: An interest rate swap one of whose legs is linked to movements in a foreign exchange rate. Changes in the reference foreign exchange spot rate result in linear changes in the coupon rate paid/received under the swap. This swap allows borrowers, for example, to swap their debt into an interest rate that varies directly with a foreign exchange exposure they have. Adverse movements in foreign exchange rates are offset by smaller interest rate payments on their debt.

Linear regression: Simple linear regression is a type of regression analysis involving only two variables whose relationship is assumed to be linear. The term linear means that the value of the dependant variable  $y$  is determined by the independent variable  $x$  and that the relationship is:  $y = a + bx + u$ , where  $a$  is a constant;  $b$  is the regression coefficient and  $u$  is the error or disturbance term. See heteroscedastic.

Lognormal distribution: A variable has a lognormal distribution if the logarithm of the variable is normally distributed. The lognormal distribution is used in option pricing to describe the likelihood that the market will vary from current levels by the end of a given time period. Standard option pricing theory postulates that the spot price of the underlying follows a lognormal random walk -- that is, that a move up by 1% has the same probability as a move down by one degree, and that the mean of the distribution, and therefore the most probable market price at the end of the period, is today's current market rate. In the case of foreign exchange options, for example, that means the forward outright rate associated with the time period. See normal distribution.

Long-term foreign exchange (LTFX): An alternative to currency swaps, these are outright forward purchases/sales of a currency for a future date at a price agreed at the inception of the agreement with no spot exchange at the time of closing. They enable the holder to lock away forward foreign exchange points for periods over 18 months and are used primarily to hedge existing or anticipated exposures such as long-term borrowings or future receivables. LTFX agreements usually entail a single exchange at a future date or a series of exchanges spread evenly over a number of years. They are functionally equivalent to a zero coupon currency swap and can be used to replicate a fixed-to-fixed currency swap. In general though, currency swaps are more flexible.

Lookback option: An option that allows the buyer, at maturity, to choose the most advantageous exercise conditions that have occurred over the life

of the option. There are two varieties: the lookback strike option, or floating-strike lookback, instead of having a specified strike price, allows the buyer at expiration to look back over the life of the option and set as the strike the most favourable price that has occurred during that time. A lookback call (put) allows the buyer to choose the lowest (highest) price that has occurred over the life of the option. These strikes are then compared with the spot price at expiration to determine the option's payoff. The second type of lookback option, the fixed-strike lookback, sets a strike at the outset but then at maturity allows the buyer to look back over the life of the option and choose the most favourable exercise point to maximize profit between strike and exercise.

Lookbacks are most profitable to the buyer (net of premium) if the realized volatility of the underlying price is higher than the implied volatility. If a buyer believes that there will be a sharp move in price but is not sure when and for how long the price will move, lookbacks are attractive. Because they allow the buyer to choose the best exercise conditions with perfect hindsight, lookbacks command much higher premiums than conventional options. Also known as hindsight options.

Lookback swap: A swap in which, for example, the holder pays the highest Libor setting in the reset period and receives Libor set at the beginning of the period plus a spread. In a two-year deal with six resets, for example, the holder could receive six-month Libor plus 120 bp and pay the highest daily six-month Libor rate in each six-month period.

Lookforward option: An option that gives the holder the prospective right to the difference between the spot (strike) price at the beginning of a period and its high (call) or low (put) over that period.

M

Mandarin collar: A collar (cylinder, range forward, fence) that is restructured using an overlay of digital options. The underlying collar remains in place but the holder sells a range binary option (a package of digital options) so that as long as the underlying trades within the boundaries of the collar, as the holder of the collar clearly expects it to, then the range binary option produces an additional payout.

Margin: See futures contract.

Margin for credit swap: A credit derivative used to hedge the value of a loan asset which the holder wishes to hold for the medium-term. Instead of paying for a vanilla put option, which would incur upfront premium, the asset holder pays the margin from the loan to the swap counterparty over the life of the loan in exchange for a put at a pre-agreed strike level, say 60 cents on the dollar. At maturity, if the loan has fallen to below 60 cents on the dollar, the swap seller reimburses the holder the difference between that value and the strike of the option.

Other varieties involve the exchange of Libor-related payments streams for payment streams dependent on the ratio of interest rate moves to loan value of a particular asset or portfolio.

Mark-to-market: The process of determining the present market value of a security or derivative position. It is clearly crucial for investors to be able quickly to determine the market value of their positions, but it is also vital that corporate treasurers have this information even for positions put on as hedges. Firstly, it enables them to compare the performance of the hedge versus the underlying liability or asset, to quantify any basis risk and, if necessary rebalance the hedge. Second, by understanding the factors that affect the value of a derivative, the



treasurer will be better able to determine the appropriateness of a hedge. One whose value moves in extremes is likely to be highly leveraged and may be difficult to unwind. It should be noted that the mark-to-market behaviour of the price of a derivative its breakeven behaviour as a hedge will differ. For example, a complex swap may breakeven on maturity having incurred mark-to-market losses before maturity.

**Mark-to-market cap:** An interest rate hedge structure that puts an upper limit on the marked-to-market loss of a swap portfolio. It gives the client to enter into a portfolio of offsetting swaps at any reset period over a chosen period, at strikes that ensure that the mark-to-market loss will not exceed a predetermined amount. For example, a corporate treasurer may have a series of interest rate swaps on his books, hedging a variety of underlying **debt obligations**. This treasurer was previously not required to mark his swaps to market, but recent accounting changes force him to. In this case, he wants to limit any adverse bottom line effects.

Suppose he has a portfolio of five receive-fixed swaps maturing at different dates between October 1996 and October 1998 which currently show a mark-to-market loss of \$4 million. A mark-to-market cap would provide the company with an option to enter into pay-fixed swaps at any rate reset date over the next 12 months exactly offsetting the existing swaps in the portfolio and locking in loss of \$4.5 million. Alternatively the options could be cash-settled. The cap premium can be paid upfront or on a periodic basis. The premium itself depends on the underlying parameters of the swap portfolio: tenors, notional amounts, strikes, correlations and embedded option features. Protection on a portfolio basis is cheaper than buying caps on the individual swaps. See interest rate basket options, foreign exchange basket options.

**Markov process:** A class of stochastic processes. Most option pricing models assume that movements in the price of the underlying or, in the case of interest rate options, the zero-coupon curve, is determined by a Markov process.

**Mean reversion:** The tendency of variables, most relevantly stock prices, interest rates, and volatility, to trend away from extremely high or low values and to revert to a long-term average level. When the value of a mean-reverting variable reaches a very high level, it is more likely to go down than to go up. Conversely, when it reaches a very low level, it is more likely to go up than to go down.

Mean reversion is important in option pricing because it contradicts an assumption of many early models that the variance of the price of the underlying asset of an option is directly proportional to the option's term to expiration. This assumption implies that the statistical dispersion of asset prices will widen indefinitely further and further into the future. In interest-rate option pricing models it means that interest rates can become negative. (Interest rate model are further constrained in absolute terms: in a normal economy 100% rates are extremely unlikely.) The practical consequence for pricing is that the longer-dated an option, the more seriously it will be mispriced by models that ignore mean reversion. To account properly for mean reversion and hence estimate the volatility of an economic variable that demonstrates it, a more complicated underlying model than geometric Brownian motion is needed. Models such as Vasicek and Cox-Ingersoll-Roll incorporate mean reversion to account for the term structure of volatility. The Hull-White model goes further by proposing that mean reversion is time-dependent.

**Mini premium option:** Also called the step payment option, this is an FX option for which no initial premium is paid. If, subsequently, the spot

rate moves beyond pre-set trigger points set out-of-the-money relative to the strike, certain fixed premiums are payable by the holder of the option at maturity. For catastrophe insurance, the structure offers potentially zero premium protection. However, if all the trigger levels are reached, then the holder pays more in premium than the equivalent vanilla option. For this to have happened though, the underlying must have moved in the hedger's favour.

An example might be an FX hedger short dollars and long the Deutschmark booked at 1.5700. A three-month mini-premium option (with the forward at 1.5673 and volatility at 9.8%) would have no initial premium but the following terms: premium trigger levels of 1.5300, 1.5100 and 1.4900 with the premium at each level 1.50% US\$ (235.5 DM pips). If any of the trigger levels are reached, then the premium is due. If all the levels are reached, a total of 706.5 DM pips will have been paid -- far more than the 1.83% US\$ (287 DM pips) payable for the equivalent vanilla European option. See contingent premium option, deferred premium option, pay-as-you-go option, installment option.

Mismatched collar: A collar in which the tenor of the cap and the tenor of the floor are not equal.

Mismatched payment swap: A swap in which payment streams are not exchanged on the same date. For example, the floating amounts are payable semi-annually but the fixed amounts are payable quarterly. These types of swap are uncommon as they entail greater credit risk than swaps with matched payments.

Modified duration: See duration.

Momentum cap: See adjustable strike cap.

Monetization: The realization of the value of the options embedded in puttable and callable bonds using either government bonds, forward swaps or, most commonly, swaptions. See call monetization.

Money-back option: An option that is guaranteed to pay back at least the upfront premium on expiry.

Money market swap: See basis swap.

Money spread: See horizontal spread.

Monte-Carlo simulation: A generic technique involving the generation of random numbers to solve deterministic problems. It is often used by numerical option pricing models as an alternative to the binomial process as a simulation of the underlying asset price. Using computers, a Monte-Carlo simulation attempts to simulate the process that generates future movements in the price of the underlying. Each simulation results in a terminal asset value and several thousand computer simulations give a distribution of terminal asset values from which the expected asset value at option expiration can be extracted. This method is used to value complex options, particularly path-dependent options for which there is no analytical solution.

Mortgage prepayment cap: A cap on mortgage prepayment rates (usually PSA rates). It protects the holder against the effects of increased prepayment on a mortgage-backed portfolio.

Mortgage (replication) swap: A type of index amortizing swap in which the payment and prepayment rates on a portfolio of fixed-rate mortgages are exchanged for a fixed-rate payment stream. The mortgage-related flows are

generated by a pool of mortgages or an index on such a pool. Although the interest payments into this payment stream are fixed, the notional principal can amortize as borrowers prepay mortgages if interest rates fall significantly. If this happens, the notional principal on which the mortgage swap cashflows are calculated amortizes accordingly. This kind of swap allows investors to enjoy the flows from a portfolio of mortgages without taking mortgage assets onto their balance sheets.

Moving strike option: A path-dependent option whose strike depends on the previous path of the underlying. For example a moving strike cap is an interest rate cap whose strike for the next period is based on the current rate level plus a spread. Also known as adjustable strike options, momentum options. See adjustable strike option.

Multi-factor model: An option pricing model in which there are two or more uncertain parameters in the option price. In general, multifactor models are better able to cope with valuations of interest rate options and complex options like spread options, which themselves have several parameters whose volatilities need to be modelled independently and whose correlation is best treated as a separate variable.

Multi-factor option: See rainbow option.

Multi-rate reset: A swap in which the reset and payment periods are unusually frequent. For example, an interest rate swap in which the floating-rate payer pays six-month Libor on a monthly basis.

Multi step-up callable bonds: FRNs whose initial coupon is well above prevailing vanilla **rates** and whose coupon steps up over their lives. The bonds are callable every six months and so investors have effectively sold the issuer a Bermudan call option on the **note** for which they receive the higher coupon. The bonds are usually swapped into **floating rate** Libor in which case the counterparty (paying the multi step-up coupon in exchange for Libor less a spread) holds a Bermudan receiver swaption (to receive the multi step-up coupon) which cancels the swap on exercise. The call on the **note** is triggered by the swap counterparty calling the swap.

Municipal swap: An interest **rate** swap in which the **floating** payments are indexed to the returns from tax-exempt US municipal bonds. The index is generally the JJ Kenny municipal index.

N

N-cap: A modification of the knock-out cap. In a knock-out cap, once the knock-out level has been reached, the protection of the cap either disappears completely or for that period. With an N-cap, once the trigger is reached, the original cap level is replaced with a second cap level for that period. it is therefore more risk averse than the knock-out cap.

For example, a borrower with a three-year floating-rate loan may believe that interest rates will remain at present levels and may begin to fall. However, they want some protection. They could purchase an 8% cap for 250 bp. Alternatively, they can enter an N-cap as follows: a three-year 8% cap, with a trigger at 10% and a second cap level at 11%. The cost of the N-cap is only 150 bp. If Libor in the first period is 8.50%, the hedger can claim 50 bp under the 8.00% cap for that period. In the second period Libor unexpectedly rises to 12%. The trigger of 10% has been breached and so the active cap level is now 11%. The hedger claims 100 bp for this period. The cap level for each period is either 8% or 11% depending on the level of Libor. The N-cap is a knock-out cap struck at the trigger level combined with a knock-in cap struck at the second cap level. It will therefore be cheaper than a straight cap but more expensive than a knock-out cap. Also

known as a dual- or double-strike cap. See barrier options, hybrid derivatives.

**Naked:** A long or short derivatives position initiated without any corresponding position existing in the underlying. So, naked position would include being long puts without an underlying position to hedge or being long a swap with no underlying liability or a smaller liability portfolio than the notional principal of the swap. See covered.

**Nearly-perfect swap:** An interest rate swap in which a fixed rate is swapped into a low, off-market floating rate linked to a reference index such as Libor but subject to the following type of formula: for every basis point that Libor exceeds a pre-set cushion level between two reset dates, the spread over Libor increases by a pre-set amount, say, one basis point. Libor is set at the end of each payment period. The floating-rate payer is taking the view that the velocity of the increase in short rates will not exceed the cushion level.

**Net present value (NPV):** The difference between the present values of two different cashflows or between the present value obtained at one rate of discount and that obtained at another. So, because there is no upfront premium payable on an interest rate swap, the NPV of the future fixed- and floating-rate payment streams must be zero. That is, the difference at initiation between the present value of all the future fixed-rate payments due under the swap and the present value of all future floating rate payments is zero.

**Neutral hedge ratio:** See delta.

**Non-stationarity:** In option pricing this term often refers to the variability of volatility, a phenomenon usually explained by changes in economic factors. Given non-stationarity, the volatility input into option pricing models should be that which is forecast over the life of the option, not a historical figure.

**Non-uniformity:** In option pricing used to refer to the fact that volatility is expected to be higher on certain days than on others.

**Normal density:** The integral under the normal distribution function between two points or between one point and infinity.

**Normal distribution:** The most widely occurring frequency distribution. The normal distribution is distinguished by its symmetrical bell shape and has the statistically desirable characteristics of being completely described by the mean and standard deviation of the distribution. The mean indicates the position of the centre of the bell, the standard deviation how spread out it is. If a variable is normally distributed, 68.27% of its values will fall within plus or minus one standard deviation of the mean; 95.45% will fall within plus or minus two standard deviations and 99.73% will fall within plus or minus three standard deviations from the mean. However, the normal distribution has several weaknesses for financial models. See lognormal distribution.

**Notional principal (amount):** The nominal value used to calculate the cashflows on swaps and other cash-settled derivatives. In an interest rate swap, for example, each period's interest rates are multiplied by the notional principal amount to determine the actual amount each counterparty must pay. In interest rate swaps the notional amounts are not exchanged, so any credit risk is limited to the net amount payable plus a potential future exposure factor. Descriptions of the size of the derivatives market almost always refer to notional principal amounts when in fact the amount of money at risk is a tiny fraction of that.

Novation: The replacement of one or more derivative contracts with new ones, often also with one of the counterparties replaced by a new one. One common use of novation is in the creation of chains of swaps which, having been cancelled and reassigned, can be used to provide loans in circumstances where straightforward lending would be expensive or not permitted.

NPV swap: See concertina swap.

Numerical model: An option pricing model which avoids the requirement to solve a stochastic differential equation by specifying a particular process for the underlying asset price and then using an iterative approach to solve the value of the option. The commonest process chosen for the underlying asset price is a binomial process hence these models are also called binomial or lattice models. The most famous is the Cox-Ross-Rubenstein model of 1979. Numerical models can be divided into three main classes: the binomial models, the finite difference models, and Monte Carlo simulations.

O

Off-market: Below or above the market rate.

Omega: (Character omitted) The currency risk incurred by the buyer or seller of a currency option in translating the value of the option to another currency. Also sometimes used to refer to the third derivative of the option price with respect to the price of the underlying.

One-touch: Used of path-dependent derivatives which payout or do not contingent upon a pre-set barrier having been breached at any time during their maturity. In this they differ from at-maturity binary structures that payout or do not contingent upon the underlying level versus the barrier level at expiration.

/option: A type of digital or binary option that pays out if the underlying reaches the strike at any time from start to maturity. They can be considered the equivalent of an American-style digital option versus the European-style digital which only pays out if the underlying has reached the strike at maturity. One-touch digitals are generally priced with the payout fixed at 100. The premium is then adjusted, allowing simple analysis in terms of the payout ratio. For example, if the digital costs 55 cents and the payout is \$1.00, then the digital has a payout if 1.818:1.

/swap: A swap in which, for example, a holder pays six-month Libor and receives six-month Libor plus 100 bp for each period in which a pre-set barrier is not breached.

One-way (collared floater): See ratchet floater.

Optimal rate lookback option: See lookback option.

Optimal strike lookback option: See lookback option.

Option: A contract giving the holder the right but not the obligation to buy (call) sell (put) a specified underlying asset at a pre-agreed price at either a fixed point in the future (European-style) or at a number of specified times in the future (Bermudan-style) or at a time chosen by the holder up to maturity (American-style). Options are available in exchange-traded and over-the-counter form and can also be packaged as securities either separately (warrants) or embedded in bonds (embeddos).

Out-of-the-money: An option that has no intrinsic value because the price of the underlying is below the strike price of a call or above the strike price of a put.

Out-option: A barrier option which is a conventional option unless the price of the underlying moves reaches a pre-set trigger price, in which case it is extinguished and ceases to exist. A down-and-out option is extinguished by a downward movement of the underlying through the outstrike, an up-and-out by an upward movement. Also known as a knock-out. See barrier option.

Outperformance options: See rainbow option.

Outstrike: The barrier price of an out-option.

Over-the-counter: The market for securities or derivatives created outside organized exchanges by dealers trading directly with one another or their counterparties by telephone, screen or telex.

Over-the-top-option: An up-and-out option -- a barrier option extinguished if the price of the underlying rises above the outstrike.

P

Parallel shift: A parallel shift in the yield curve, assumed by many hedging strategies, is a movement of each point on the yield curve by the same amount at the same time.

Par swap yield curve: The term structure of swap rates, that is, a yield curve that plots swap rates against maturity and that is derived from the zero-coupon yield curve.

Par yield curve: The curve formed by the yields to maturity associated with bonds currently selling at par. The par curve is important as the yields on bonds selling at par are likely to be more representative of the underlying term discounting rates implicit in the market. Bonds selling at a substantial discount or premium to par are often subject to special forces which distort their prices. For example, a high-coupon bond may be considered an especially desirable investment in an environment where interest rates have bottomed out. Gaps in the curve caused by a lack of available bonds are filled by interpolating from existing bonds the coupons necessary for bonds at those maturities to be priced at par.

Parity: Used in several different senses in the warrant and option markets. Of options generally, parity is the condition in which an option's value in the market is the same as its intrinsic value. In the warrant market though parity can be positive (the warrant has intrinsic value) or negative (it has no intrinsic value).

Part contingent premium option: A knock-in option that knocks-in only if the underlying moves sufficiently against the holder's underlying position. The initial premium is less than for a standard knock-in, but an additional premium is required if the option is knocked-in. See contingent premium option, deferred premium option, mini premium option.

Partial fill plus option: Commonest in the commodity derivatives markets, a partial fill plus option strategy is a swap agreement in which one counterparty receives an off-market high fixed rate in exchange for the market floating rate. In exchange for the off-market rate, the fixed-rate receiver grants the floating-rate receiver the option to double the amount of the swap if the price of the underlying exceeds the swap rate.

So, for example, a company with a total hedge requirement of 100,000 barrels of crude oil per day could enter into a swap under which it was paid \$1 more than the going swap rate for its oil on 50,000 barrels. If oil prices rose substantially, then the floating rate receiver would exercise

the option and would not only receive a floating-rate higher than the fixed rate it was paying but would receive it on twice the original notional principal of the swap. The swap can also be structured to be of use to the floating receiver.

**Partial lookback option:** An option whose strike price can be reset to the most favourable level of a pre-set past period (usually between one and three months) after which it becomes a standard European- or American-style option. A lookback period limited to the first part of the option's life will help improve the timing of any market entry; one limited to the last part of the option's life will help with market exit timing.

**Participating:** In general a derivative holder participates in, that is benefits from, the upside of the instrument.

**/cap:** A partial cap that reduces exposure to an upward move in the price of the underlying rather than eliminating it completely.

There are two versions. Either the hedger simply buys a cap with a smaller notional principal than the underlying exposure, giving both counterparties participation on an average basis. Or, if a zero premium structure is required, the hedger simultaneously buys an out-of-the-money cap and sells an in-the-money floor with a lower notional amount. Since the floor is in the money, it needs to be struck on less notional principal to create a zero premium. The structure limits participation in downward rates to the portion of the underlying exposure not covered by the floor sale.

**/forward:** An FX option position (usually structured so as to be zero premium) in which the put (call) options sold are in-the-money to finance the purchase of call (put) options. This means that fewer options must be sold than are purchased. The position is so called because the hedge rate is commonly the same as the standard forward rate but protection is only paid for if the final asset price is below the strike. As the final asset price declines, the cost of the protection increases. The provider of the floor is paid with a portion of the potential profits -- the seller of the structure participates in upside gains.

The position, sometimes known as a profit-sharing forward can be seen as an adaptation of the range forward in which only a floor is fixed. In place of a premium, the holder agrees to pass a percentage of any gain to the seller. This seller's participation rate varies in proportion to the level of the floor. A low participation rate gives a low floor and vice versa. The buyer has a choice of participation rate and floor. Based on the choice made, the seller then fixes the other variable.

**Participating forward positions** usually include a position in the underlying: so to hedge against price falls in the underlying, the hedger shorts the underlying or future or synthetic, sells in-the-money calls and buys more out-of-the money puts.

**/interest rate agreement (PIRA):** A premium-reducing option strategy in which the holder buys cap on a notional  $x$  and sells a floor at the same strike but on a notional principal of a proportion of  $x$  such that the transaction incurs no upfront premium.

**/option:** An option which changes the rate of participation in a price or rate movement once the strike price has been reached. For example, a call option on the FTSE-100 stock index might give 100% participation from a strike at-the-money up to the point at which the index has moved up 10%; Then further participation is limited to 50%. Effectively the option holder has sold a call at that level on half the notional principal of the original call. Because of this, the participating option is cheaper than the standard variety.

/swap: Any swap in which one of the counterparties participates in favourable movements in the underlying price or rate while fixing a maximum cost. One interest rate version is an interest rate swap in which the floating-rate payer caps his maximum payment but, by combining the swap with a participating interest rate agreement, retains some participation in any falls in interest rates.

The commodity version works in much the same way: an oil consumer might elect to enter a participating swap under which he agrees to an off-market fixed rate \$1 above the swap rate on a conventional fixed-for-floating commodity swap in exchange for 50% participation in any downward movement in price. If the average of the index price over the reference period is above the agreed fixed rate, then the consumer pays that rate and receives the difference between it and the index rate -- capping its cost at the off-market swap rate. If the index price of the commodity is less than the off-market swap rate, then, instead of paying 100% of the difference to the counterparty and receiving the index price as would be the case in a normal fixed-for-floating swap, the consumer pays only 50% of the difference between the two, benefiting from 50% of the price decline below the cap rate.

Path-dependent option: An option whose payoff is a function of the continuous path the underlying rate or price has taken over the life of the option. This contrasts with straightforward options whose payoff is usually a function of the price of the underlying at only one point: exercise or expiry.

Path-dependent options include average rate/price options, average strike options, lookback options, cumulative options, cliquet options, ladder options, hi-lo options, shout options and periodic reset options. Path dependent options cannot be priced via analytical solutions and to arrive at a price for the discounted expected value of their terminal payoff over all possible paths, computationally intensive numerical methods are needed.

Payer('s) swaption: An option that gives the buyer the right but not the obligation to enter into an interest rate swap paying fixed and receiving floating. It is also called a put swaption as it is analogous to a put on a fixed-rate instrument (that is, an option to issue a bond). The buyer benefits if rates rise as the option will become more valuable. If rates rise above the fixed rate payable under the swaption, then the holder can exercise it and swap an existing floating rate liability into an advantageous fixed rate.

The payer swaption is similar to a cap in that it provides an interest rate ceiling, but it has to be exercised to provide the fixed rate, and once exercised, the holder is locked into paying a fixed rate, unlike the cap holder who can still benefit if rates fall. Also, while caps tend to reference the short end of the yield curve, the payer swaption tends to reference the two- to 10-year part of the curve.

Pay-as-you-go option: See instalment option.

Periodic (reset) cap: A cap designed to reduce premiums through resets of the cap or strike rate. Each reset is effected at a pre-agreed spread above the reference index for each successive caplet period. As a result, the buyer of a periodic reset cap/floor does not obtain the absolute protection against rate increases/decreases that the buyer of a conventional cap/floor does. Also known as a variable strike cap. See ratchet option.

Phi (Character omitted): The same as Rho.

Periodic reset swap: An interest rate swap whose floating payments are



reset according to a pre-agreed schedule or index. Usually, the floating-rate payment is based on the average rate of the reference index over the previous period rather than its level on the reset date.

Polynomial swap: An interest rate swap in which polynomial equations (eg,  $Ax^2 + bx + C$ ) are applied to the Libor leg creating payment profiles that can be tailored to outperform vanilla swaps within precisely defined interest rate boundaries. The positions created give the precision of exotic options without the associated dynamic hedging.

Portfolio insurance: See dynamic hedging.

Portfolio option: An extension of the concept of basket options, this is an option on an entire portfolio of stocks or bonds, tailored on an individual basis

Portfolio swap: A tailored basket swap in which the returns from a portfolio of bonds or stocks are exchanged for a reference index. In credit derivatives, a portfolio swap takes the form of a modified **asset** swap. The swap buyer **purchases an asset** swap on the paper of a particular issuer or issuers with the proviso that, if one of a preagreed set of similar institutions with the same credit rating is downgraded, then its paper is substituted for the original bond(s) underlying the asset swap. So the buyer of the asset swap plus portfolio option receives a higher floating rate in exchange for taking an element of credit risk.

Power: Applied to any structure that incorporates leverage that is unusual either on account of its magnitude or on account on its nonlinearity. So called because of the existence of swaps, notes and options that used an index to the power of two, three and so on as one of their key variables. /Libor swap: Any leveraged swap that pays a multiple of Libor -- usually in exchange for a greatly increased fixed rate if interest rates move against the end user. Power Libor swaps often contain complex embedded options. The most notorious example is the five-year/30-year swap entered into by Procter & Gamble whose formula -- CP plus the following spread

Spread =  $98.5 \times (5 - \text{year CMT}/5.78\%) - 30\text{-year Treasury price}/100$

-- means that for every 1% increase in CMT yields above 5.78%, P&G's payment increases by more than 17% of notional principal per year and every 1% decline in long bond prices costs P&G 1% of notional principal.

/note: A bond or note that pays a coupon that is linked to a power of the underlying index. For example, a coupon might be equal to 25.00% minus  $(3\text{-month Libor})^2$  with a floor at zero. Investors in these notes want extremely high returns over a short period of time and in return accept extremely large duration and negative convexity. The equivalent investor position is long a fixed-rate note, short a highly leveraged (and changing) amount of FRN, long a highly leveraged (and changing) amount of out-of-the-money interest rate caps. The formula given above, even if applied to a two-year note, would have a duration of 14, higher than that of the long bond and since Libor squared increases at a higher rate for higher levels of Libor, the note's duration surges as Libor rises. /option: An option whose payout is the square (or some other power) of a vanilla option. They are used for hedging changes in options' implied volatility and preserve volatility exposure better than plain vanilla options if the underlying moves significantly in one direction. A plain vanilla option is affected by volatility smile and skew. A power option can be thought of as a book of options of differing strike prices stacked on top of each other, where the number of options for each strike price increases the further out of the money the strike. A two-times power option

has constant gamma.

/straddle: The combination of a power call option and a power put option struck at the money.

Preference option: See chooser option.

Premium: In derivatives, the amount paid by an option buyer for the option. An option's premium, technically, equals the probability-weighted sum of all its possible payoff at expiry, discounted to the present. Option pricing models use formulae to calculate this premium, or expected value.

Vanilla options are paid for upfront. Many exotic options are paid for in instalments or have premiums whose payment or the timing of whose payment is contingent upon some event. In the UK warrant market, premium is the negative intrinsic value of a warrant if exercised immediately. See Black-Scholes model, delta, distribution, expected value, lognormal distribution, rho, theta, time decay, time value, vega, volatility.

Prepaid forward sale: The sale of the underlying for the future with the present value of the forward sale paid to the seller at the offset of the transaction. This is common as a loan substitute in the commodities markets. Oil producers sell oil on a prepaid basis to a lender/counterparty who pays the producer and then hedges his forward oil price risk through the sale of physical crude or using a commodity swap. Producers use such transactions because it enables them to pay off debt today with tomorrow's revenue.

Prepaid swap: See reverse zero-coupon swap.

Prime-Libor differential **notes**: A **floating-rate note** that pays a coupon based on the spread between the Prime **rate** and three-month Libor. While this differential remains high, the yield on these **notes** is higher than on comparable vanilla FRNs. Similar to CMT-Libor differential notes in that they were developed at a time when **rates** were falling and even CMT and Prime FRNs did not offer much yield pickup over vanilla FRNs. The investor is effectively long a Prime FRN and long Eurodollar futures. The notes incorporate a floor to prevent coupons becoming negative. The main risk investors in these notes face is that the relationship between Prime and Libor is not clear.

Principal guaranteed bond/note: A fixed-income instrument that offers investors the guaranteed return of all or a high percentage of their principal plus some, all or a multiple of the rise in value of a particular underlying **asset**, usually a stock index.

They are most easily constructed by the **purchase** of a zero coupon bond whose maturity and nominal value matches that of the capital guaranteed instrument. The difference between the price of the zero and its nominal amount is used to buy call options on the desired underlying. The amount of participation in the underlying asset depends on the cash available to buy calls. Falling interest rates reduce the price of the calls but push up the cost of the zero coupon bond. This affects the level of gearing that can be offered. There are various names for this structure, for example Guaranteed Return on Investment Units (GROIs).

Probability distribution: The distribution of probabilities for values of an underlying asset price or other variable. Such a distribution is central to options pricing. It is usually modelled either using numerical models, or by modelling it as a stochastic process using analytical models such as Black-Scholes.

Put option: The right but not the obligation to sell a pre-agreed amount of a specified underlying at a pre-determined price or rate.

Put-call parity: The proposition that the value of a put option is equal to the value of a European call option with the same exercise price and time to expiration plus a riskless investment of the discounted value of the exercise price of the call and a short position in the underlying. For European options, an arbitrage opportunity will exist if this condition is not fulfilled. Put another way, a put purchased alongside a long forward position will synthesize a call and a call purchased alongside a short forward will synthesize a put. Arbitrage prevents the synthetic version of a contract from costing more or less than the original. See conversion, reversal.

Put spread: An options position involving the simultaneous purchase and sale of put options on the same underlying either with different strike prices or maturities or both.

Puttable swaps: A swap contract in which one or other of the counterparties has the option to cancel the transaction. Usually, it is the fixed-rate payer who has the option to terminate when the underlying falls to a pre-agreed level.

Q

Q-cap: Short for Cumulative cap. An interest rate cap that provides a ceiling on the total interest cost over a period. In exchange for a premium, a borrower receives a guaranteed maximum cash interest cost for the period. The borrower pays the interest charge up to the guarantee level and payments above this are reimbursed by the option seller. The Q-cap is cheaper than a standard cap as long as the period chosen for the cap significantly exceeds the standard three-month reset dates of a standard cap. This is because, instead of the cap seller having to pay out whenever rates exceed the cap, variations in interest rates are added together and may cancel each other out over several periods. This makes the cumulative cap cheaper than a standard cap depending on the shape of the yield curve, the cap's tenor, the periods for guarantee, the strike and interest rate volatility.

The cumulative floor works on the same principle, guaranteeing an investor a minimum amount of interest income from an asset. Also known as cumulative caps, payment caps.

Quanto: A derivative product denominated in a currency other than that of the underlying to which exposure is sought. Quanto is short for quantity adjusting (or is from 'quantum' the size of the hedge from the Latin for 'how much?'), a reference to the variable notional principal of these products which reflects the fact that the face amount of currency coverage they contain rises or falls to cover changes in the foreign currency value of the underlying.

For example, an option on the Nikkei stock index denominated in US dollars will pay the total returns on the Nikkei in US dollars with the exchange rate usually set at the spot exchange rate prevailing at the start of the option contract. To hedge the foreign exchange element of this contract, the option writer must convert the returns from the index from yen into dollars at each payment date. Simple forwards cannot be used because these returns are not known in advance. They must adjust in quantity to match the receipts from the index. The correlation between rises/falls in the Nikkei and strengthening/weakening of the yen against the dollar must be taken into account. If the exchange rate is set at the spot rate prevailing at the start of the option contract, these forwards must also be off-market.

Options with this guaranteed exchange rate feature are said to have been quantized or, after the quanto version of an interest rate swap which is often called a differential swap, diff'd.

/note: See currency protected note.

/swap: See currency protected swap.

/option: See currency protected option.

Quantize: To denominate a derivative and its payment streams in a currency other than that in which the underlying is normally denominated. Also, to diff, for differential swap.

R

Rainbow option: An option whose payout is based on the relationship between multiple assets as opposed to the price or performance of a single asset. Common examples are spread options or better-of-two-asset options. A rainbow option whose payout depends on two assets is said to be a two-colour rainbow, on three assets a three-colour rainbow and so on. Also known as multi-factor options or outperformance options.

Ramp function: A component of the generalized option function where payoff increase or decrease is defined beyond the break point.

Range binary option: A digital option that pays a fixed multiple of the premium as long as the underlying does not trade outside a pre-set range. If it does, there is no payout and the premium is forfeit. Often combined with a deposit to create interest rate or FX binary range (accrual) notes and in the construction of accrual swaps.

Range forward: The currency markets' version of what in the interest rate markets is called a collar. So called because its payoff matches that of a standard forward, but only within the range set by the bought and sold options which produce a floor and a ceiling. Like a collar the range forward is usually structured so that no premium is payable upfront (while in a break forward the option premium is eliminated by the off-market rate for the forward contract). In the exchange-traded options markets the term is also sometimes used to refer to the more general position of being long a call (put) and short a put (call), sometimes also with a position in the underlying or a synthetic. See break forward, collar, cylinder, participating forward.

Range **floating-rate note**: Short-maturity

FRNs that pay an enhanced coupon over Libor for every day that the Libor daily fixing remains within a predefined interest-**rate** range or that a specified foreign exchange rate remains within a predefined range. The investor receives no accrued interest for as long as the underlying remains outside this corridor. In general the ceiling is set above the implied forward rate and in later versions of the note the range is reset at the beginning of each coupon period so that investors start each period in the middle of the range or the range structure can be quit (these are known as resettable or resettable quittable range floaters. Another variant allows investors themselves to specify the range and are known as investors' choice floaters.

The basic range floater is essentially a bond or deposit with an embedded corridor option, that is, the investor is effectively long an FRN and short binary options. So, for example, a two-year range floater might pay Libor + 100 bp with interest accruing only on days when three-month Libor is between 3% and 4% in the first six months, 3.125% to 4.75% in the next six

months, 3.25% to 5.5% in the third six months and 3.5% to 6% in the last six months. Assuming 360-day convention, so that each semiannual period has 180 days, the investor has sold the following package of binary or digital options: for the first six month period 260 binary options on three-month Libor -- 130 calls with a strike of 4% and 130 puts with a strike of 3%; for the next period, the same quantities of call and puts but with respective strikes of 4.75% and 3.125%, and so on. Every day, one call/put combination is either exercised or expires. If on any day three-month Libor is high enough for the calls to be exercised, then the purchaser of the range note -- the seller of the binary option -- effectively pays the holder of the binary call  $((3\text{-month Libor} + 100 \text{ bp})/360) \times \text{principal amount of bond}$ . Likewise, on any day, if three-month Libor is low enough that the binary put is exercised, then the purchaser of the note effectively pays the buyer of the put the same amount. Hence the spread to Libor payable by such notes -- in this case 100 bp -- is determined by the level of premium obtained for the options. This in turn will be determined by the width of the range (the broader it is, the less likely the options are to be exercised and so the less premium they will command) and the volatility of Libor (the higher it is the higher the premium for the options.)

The interest **rate** versions of such **notes** were first developed for investors who did not want to invest in inverse **floaters** but who nevertheless wanted a bullish **rate** play. The coupon of the range **floater** can be fixed- or floating-**rate**, though most are floating. The FX versions are commonest at present. For example, a US dollar investor might want to improve upon the current one-year dollar deposit rate of 7.65% by taking a view on dollar/Deutschmark exchange rates. For the right to enhance his yield if his rate view is correct, he is willing to accept a lower minimum yield. So, part of the 7.65% depo rate is used to buy an FX corridor option with a corridor range of 1.4500 to 1.6500 and a pay-out ratio of 1:2.75 (that is, the maximum payout of the option is 2.75 times the premium invested. The option costs 5.00% of the amount invested, so if the spot rate traded outside the range for the entire year, the investor would receive no additional payment and would receive a yield of just 2.65% (7.65% - 5.00%). The return on the note is calculated as  $\text{yield} = 2.65\% + (\text{no. of days spot fixes in the range} \times \text{fixed multiple of premium}) / \text{total business days in option period}$ . In this case, the minimum payout is 2.65% and the maximum is 16.40%.

The above FX and interest **rate** examples pay interest on days when the spot **rate** trades within the range and nothing on days when it does not. A similar type of range **floater** is the fixed accrual **note** which has two fixed coupons, one (high) payable on every day that the underlying trades within the range, the other (low) payable on every day it does not.

There are also binary versions of the range floater, known also as binary accrual notes. This is a more aggressive version of the standard range floater since any breach of the boundaries cancels the embedded range binary option completely, leaving the investor with just the minimum yield and no further opportunity to accrue interest if the underlying trades back inside the range at a later date. Given this increased risk, the maximum yields are much higher: a range binary option with the same boundaries as the FX corridor option above would cost less (2.00% of the amount invested) and its payout ratio would be much higher (1:12). This gives a minimum 5.65% return and a maximum 29.65%.

There is yet another variant, the limit binary range floater, which pays out its enhanced yield only if both boundaries are hit. All these notes are usually structured with a guaranteed return of principal. They are also known as a fairway bond or an accrual note. See boundary binary option, corridor option, flexi range floater, Libor enhancement accrual note, limit

binary option, range binary option, yield curve accrual note.

Range (floater or Libor) swap: See accrual swap.

Range warrant: A warrant that pays out a predetermined amount if the underlying remains within a pre-set range. First seen privately in 1989 and publicly in 1990 long before range-FRNs and other structures including digital options, these were common in Germany. This was because the warrants were tax-driven and the range was irrelevant, the boundaries being set so wide that they would never be reached.

The warrant might have a premium of Dm300 and payoff Dm330 if a stock that normally traded between Dm400 and Dm450 traded between Dm50 and Dm800. This simply approximated the return on a money market instrument but, as a capital gain, was tax-free. When this became too transparent, a second, multi-tranche, structure was created in which one tranche received a payout of the underlying if it traded within a certain range, another tranche received a payout if the underlying traded within a different range and so on.

The idea remained the same. The tranches were calculated so that, if bought in a certain combination, there would be a guaranteed tax-free payoff that on a post-tax basis made the warrants more attractive than an equivalent money market investment.

Ratchet: Used of a variety of derivatives structures in which key variables such as strike prices are resettable, which in some cases leads to investors' gains are locked in regardless of future movements in the underlying.

/cap: See adjustable strike cap.

/floater: An FRN that pays a high floating coupon, say Libor plus 65.5 bp, subject to a condition that the coupon cannot rise by more than a fixed amount, say 25 bp, from the previous coupon level nor fall below the previous coupon. The note has a high first coupon of, say, 4.655%. The investor is effectively long an FRN, short a path-dependent or periodic cap and long a path-dependent or periodic floor. In other words, this is another structure in which investors are taking a view against the forward curve. In a steep forward curve environment in which it is implied that rates will rise 2% or 3% in the next year, a cap that protects its holder against any rate rise of more than 25 bp in a quarterly period will be expensive (though not as expensive as a vanilla cap) and so the investors in this ratchet floater will be well compensated for selling it. Equally, the floors the investor is buying will be cheap. This combination is behind the rationale for the note: to provide a high coupon floor at a time when although the forward curve is implying sharp rate rises, the investor believes rates may fall or rise much more slowly. The risk for the investor is that the note will severely underperform if rates do rise (particularly for variants of this structure where the coupons are made more generous by the inclusion of a knock-out feature so that if rate rise above the knock-out level the note only pays a nominal coupon) and the volatility risk due to the complex embedded option position can make the note behave strangely on a mark-to-market basis. Also known as a one-way floater and a sticky floater.

/option: An option which allows holders to capture a high proportion of the appreciation of an index as it goes up (call) down (put) and to freeze these gains at pre-set price levels regardless of the future path of the underlying. See ladder option.

/swap: An interest rate swap in which the fixed payment stream can be reset to a pre-agreed level at predetermined intervals. See periodic (reset)

swap.

Rate differential option: See cross-currency option.

Rate differential swap: See currency protected swap.

Rate lock: An agreement that enables the purchaser to lock in the underlying rate but not the spread for an agreed period from a forward date.

Ratio forward: See participating forward.

Ratio spread: A ratio forward (back) spread is the simultaneous purchase (sale) of in- or at-the-money options and sale (purchase) of a larger quantity of out-of-the-money options.

So, a ratio call (forward) spread is the simultaneous purchase of at-or-in-the-money calls and sale of a larger number of out-of-the-money calls. The position will make money from the long calls as long as the underlying rises. If however it rises beyond the strike of the short calls so far that the premium income from their sale is eroded, the losses on the position are unlimited.

A call ratio backspread is the sale of an at-the-money or in-the-money call and the purchase of out-of-the-money calls on a ratio basis. The more calls bought, the higher the maximum profit. The more calls sold, the lower the cost of the overall position. Either calls or puts can be used to create ratio back/forward or call/put spreads.

Real-estate swap: A swap involving the exchange of the returns from a pre-agreed property index, such as the US Russell NCREIF Property Index, a benchmark index which takes into account the yield on 1,800 properties throughout the US, for a financial index such as Libor. Such swaps are used by institutional investors who wish to reallocate assets away from property at times of low yields, but who do not want to take the capital loss of selling the property in a bear market.

Receiver('s) swaption: A swaption giving the holder the right to receive fixed rate under an interest rate swap. As it is analogous to having a call option on a bond, it is also known as a call swaption. Just as a payer swaption is similar economically to a cap, so a receiver swaption behaves like a floor.

Reflex cap: A reflex cap is a normal cap where the premium is paid periodically, and each installment is dependent upon a trigger rate being reached. The total premium will be low if the reference rate stays below the trigger, but will be higher if the rate is above that trigger.

An example might be a company that wants to hedge a three-year floating-rate loan on three-month Deutschmark Libor. Their view is that DM Libor will peak at 9.50%. A standard interest rate cap with a strike of 9% would cost them 4% upfront. Instead they can enter a reflex cap at 9% with a trigger rate of 10%, just above the expected peak. This structure would cost the company 19 bp for every period Libor resets below 10% and 62 bp for every period Libor resets above 10%. Deutschmark Libor would have to stay above 10% for more than none out of the 12 months for the standard cap to outperform the reflex cap on a present value basis. The periodic premium is therefore low when Libor is marginally above the strike and higher when the cap is deep in-the-money. The buyer is paying more for the cap when it is most valuable.

The reflex cap is a combination of a normal interest rate cap and a series of digital options at expiry on every reset date. The normal cap is

partially paid for by a pre-set amount per period (which would be 19 bp in the example) and partially by the sale of the digitals (43 bp per period in the example.)

The reflex cap provides full cap premium without an immediate premium payment; costs less than a vanilla cap if never used; and is advantageous where the view is that rates will not rise dramatically above the strike, although if it does, the higher premium is only payable in those periods where the cap is deep in-the-money.

Refinery margin swap: See crack spread swap.

Relative performance option: See rainbow option.

Rental option: See installment option.

Replication: To duplicate the pay-out of an option by buying or selling the underlying or futures on it in proportion to its delta. To replicate a call option, the hedger must buy an increasing amount of the underlying if its price is rising and sell increasing amounts if the price is falling because calls are delta positive. The opposite is true of put replication.

Volatility and substantial price gapping makes replication difficult in practice. This kind of dynamic hedging is central to the theory of portfolio insurance. See delta.

Repurchase agreement (Repo): An agreement to buy (sell) a security with a simultaneous agreement to sell (buy) the same **security** at a predetermined future date. This price represents the **interest** rate applicable over the life of the repo and is known as the repo rate. A repo is therefore economically a collateralized loan that, particularly when the securities making up the collateral are in great demand -- known as 'special', can yield more than deposits. The transaction represented by the brackets is known as a reverse repo and has been used by companies wishing to take a view on the spread between long and short rates. They use reverse repos to borrow money which is then invested in long-dated securities. Reset-in-arrears swap: See Libor-in-arrears swap.

Reset option: An option whose strike price may be reset to a lower (call) or higher (put) level during the life of the option if it is out-of-the-money on the reset date. The reset can be predetermined in size and may be triggered between reset dates if the underlying reaches a pre-agreed level. See adjustable strike cap.

Resettable range floater: see flexi range floater.

Retractable swap: See callable swap.

Reversal: One of the arbitrages which maintains (and relies on) put-call parity. If a put is overvalued (or if the put is fairly valued but the call is undervalued), a riskless profit can be made by selling the put, buying a call, and selling the underlying or the future. This position, known as the reversal, is a synthetic long futures position hedged by the sale of the futures contract.

The other arbitrage which maintains put-call parity is the conversion -- a short synthetic futures position hedged by a position in the underlying or future. If the call is overvalued (or the call is fairly valued but the put is undervalued), the riskless profit is generated by selling the call, buying the put and buying the underlying or a future.

The actual arbitrage return depends on the additional borrowing costs/investment returns from the money market transactions which fund/result from these trades. Also referred to as reverse conversion. See



conversion.

Reverse contingent (premium) option: The put version of a contingent premium option. That is, a contingent premium option whose premium is only due if the option expires at- or out-of-the-money.

Reverse **floating-rate note**: See inverse **floater**.

Reverse indexed principal swap (RIPS): An indexed principal swap in which the notional principal amortizes as **rates** rise. Most often used instead of a vanilla interest **rate** swap to transform a floating-rate asset to a fixed-rate asset. It gets around the problem that an asset so swapped will lose its value if rates rise and returns will be reduced if the investor is short-funded. An interest rate cap incurs an upfront premium and may expire out of the money. The reverse IPS amortizes as rates rise thus reducing the size of the fixed-rate asset. Higher cost funding can then be utilized to invest in higher-yielding assets. In the same way, fixed-rate liabilities swapped into floating will incur increasing interest expense when rates rise. The reverse IPS can be used to hedge against this. See indexed principal swap.

Reverse index amortizing swap: A fixed-for-floating interest rate swap whose floating rate payments are linked to an index such as Libor or CMTs and which increase if the index declines. Receiving fixed in a reverse index amortizing rate swap provides a hedge for instruments that amortize as rates decline, although it is important to ensure that the indexes on which the amortization or accretion schedules are based are highly correlated.

Reverse interest rate collar: The combination of a reverse FRN and an interest rate collar to produce an interest cost or yield that decreases as rates rise and increases as rates fall, but within a pre-set range.  
Reverse principal exchange rate linked security: A currency indexed note whose principal repayment varies inversely with the value of a currency versus the repayment currency -- for example, a note repaid in dollars that varies in value according to the yen/dollar rate.

Reverse risk reversal: The simultaneous sale of an out- of-the-money put, the purchase of an out-of-the-money call and the sale of the underlying or a futures contract on it. The resulting payoff is the mirror image of the range forward or risk reversal. The position benefits if the underlying falls

Reverse swap: A swap agreement with the same terms and opposite counterparties to an existing swap such that, if entered into, it will cancel out the obligations of the original swap. Reverse swaps are more complex than simply cancelling an existing agreement and so will only be used if there are specific tax or accounting benefits.

Reverse zero-coupon swap: A swap in which the fixed-rate payer's obligation is fully discharged at the outset of the transaction through a single payment calculated on the basis of the present value, discounted to that payment date, of the stream of fixed payments that would have been payable over the term of a conventional swap. The present value is usually adjusted to take account of the greater credit risk involved in this kind of mismatched structure than in a matched payment structure. This mismatched structure makes the swap functionally equivalent to a loan and entails similar credit risks. Also known as a prepaid swap.

Reversible swap: An interest rate swap in which one of the counterparties has the option to alter their payment basis from fixed- to floating-rate

(or vice versa) on or after a pre-agreed date. This is achieved by combining the interest rate swap with a swaption for twice the original principal amount, one half of which cancels out the swap. See flexible swap.

Rho (P): The change in option premium for a one percentage point change in interest rates. The effect of interest rates on options premiums is complex. However, an option's payoff will be realized at expiry while the premium is payable at the offset. If the premium is to be equal to the expected value of the pay-off, it must be adjusted for the time value of money: the future number is discounted so that the present value of the premium is equal to the present value of the pay-off.

In general, the higher interest rates, the higher will be the value of the call option and the lower will be the prices of a put option. This is because the higher interest rates, the lower the present value of the exercise price of an option and so the higher the value of a call and the lower that of a put. Put another way, in buying a call instead of the asset, the buyer releases capital to be invested in a risk-free asset. Risk-neutral pricing principle: Developed by John Cox and Stephen Ross, the theory that stock options may be valued as if the underlying stock's mean rate of growth is equal to the riskless rate.

In particular, the value of a European option is the discounted present value of the payoff under the risk-adjusted probability distribution for the stock price at expiry.

Risk reversal: The option traders' name for what the FX hedging markets call a range forward and the interest rate hedger would call a collar or cylinder. As a trade though the position is a little more specific: while the strikes of the calls and puts in a hedger's collar or range forward are usually chosen so as to reduce initial premium to zero, a risk reversal is a combination of a purchased (sold) put and a sold (purchased) call with the same expiry and with the same or very similar deltas (that is, the opposing options are equally out-of-the-money forward. The position is a way of taking advantage of volatility skew: the implied volatilities of out-of-the-money puts and call of the same strike and maturity are different, and the behaviour of this difference can be traded by those with a directional market view.

Roll-Geske-Whaley option-pricing model: A extension to the Black-Scholes model incorporating the independent work of Richard Roll (1977), Robert Geske (1979) and Robert Whaley (1981) and providing a solution for the pricing of American-style call options on assets paying dividends. Behind the model is the observation that an American-option can be viewed as a portfolio of three options: a European option on the underlying; a European option to exercise the first option which will not be exercised until the instant before the ex-dividend date; and a compound option written on the first option (to incorporate the cost incurred, by exercising the first two options of forfeiting the remaining life of the first option).

The model can also be used to value calls on stock indices and American puts on stocks that do not pay dividends but cannot be used to value American puts on assets that pay dividends.

Rollercoaster swap: A generic name applied to swaps whose notional principal is different in different payment periods. Such swaps' notional principal generally increases and decreases periodically to accommodate cashflows that differ predictably on a seasonal basis or to accommodate **debt obligations** scheduled to rise and fall. See also accreting, amortizing, step-up and step-down swaps.

Rolling reset swap: A swap where one counterparty pays the lower of the arranged swap rate or the prevailing market rate on the roll date for the same tenor.

Roll-lock swap: A swap used to hedge roll risk. This is the risk that long-term hedgers face when using short-term contracts. As each expiration approaches, hedgers sell futures contracts they own and re-enter the position in a more distant month. The cost differences can be expensive and can also create tracking error.

Under a roll-lock swap the roll-lock payer pays the average of the cost of the roll (defined as the difference between the near and next futures contract) measured at pre-agreed times before expiration. The roll-lock receiver pays a Libor-based rate set at a pre-agreed time after the expiration of the near contract. Also known as a rollover lock.

Roll-up option: An option whose strike price is favourably reset at the same time as the option itself is converted into knock-out option if the price of the underlying asset trades through a predetermined trigger point, usually struck at a point where the underlying has moved significantly against the original option. So, if the underlying stood at 80, a roll-up put with an original strike of 80 might be converted into an up-and-out put with a strike of 100 and an outstrike of 110 if the underlying traded to 100. The holder has a new, more favourable put strike, but if the underlying continues to rise (ie in his favour as long as his put is hedging an existing position) then the put is knocked-out (at a point where he does not need protection).

The roll-up put outperforms the standard put if the roll-up trigger is reached but the outstrike is not. If the roll up trigger is not reached, then the roll-up put and vanilla put behave the same. Only if the roll-up trigger and the outstrike are reached does the roll-up underperform the vanilla instrument.

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Seagull: An options position consisting of a purchased call and two sold puts, one with a strike well above that of the call, the other with a strike below that of the call. This produces a schematic payoff profile that resembles a tilted and elongated 'M' -- like a schematic representation of a bird or seagull. See condor.

Seasonal swap: A rollercoaster swap in which the notional principal amount switches between zero and a variable amount to hedge the seasonal borrowing needs of the user.

Second generation structured assets: Bonds and notes incorporating design complexity in addition to embedded options. These include notes containing index maturity to reset frequency mismatch (such as a CMT FRN with coupons linked to 10-year Treasury rates but that are reset and paid on a quarterly basis), notes that pay a coupon based on the differential or sum of a number of indices, notes that include embedded exotic options, notes incorporating quantization and notes containing very highly leveraged formulae.

Securities indexed swap: The class of swaps whose main example is the equity indexed swap. In such a swap, the fund manager pays a market benchmark return, say Libor or the CP rate, and receives a rate of return based on an equity or other market index.

Self-funding cap: The cap version of a contingent premium option. It has no up-front premium. Instead, a predetermined premium is paid only at those

resets where the cap is in-the-money. If the cap expires out-of-the-money, the buyer makes no payment. In exchange for the guarantee that its premium will not be wasted, the premium is higher than for a conventional cap. This is useful for those who want interest rate protection but who would rather pay later when the premium is more likely to be required.

The instrument only works when the yield curve is steeply positive as it exploits the higher implied forward Libors to pay for the cap. It does not cap Libor in the same way as a vanilla cap, rather it caps Libor set in arrears. This is because of the way it is created. Under a straightforward Libor-in-arrears swap a borrower receives Libor (set in advance as normal) and pays Libor set in arrears. In a positive yield curve environment this means paying Libor-in-arrears less a discount, to compensate for expected higher future Libors. This annual discount can be converted to an upfront payment and used to purchase a cap on Libor- in-arrears. The upfront payment is used to buy the lowest strike cap affordable. As a rule of thumb, the cost of a three-year cap on six-month Libor-in-arrears will cost almost the same as Also known as zero premium cap.

Self regulating swap: The name applied to a number of different interest rate swaps which offer hedgers a blended fixed/floating interest rate swap when the cost of fixing has been driven up by a steep implied forward curve. See blended interest rate swap, incremental fixed swap, index amortizing/principal swap, Libor regulating swap, semi-fixed swap.

Semi-fixed swap: An interest rate swap in which there are not one but two fixed rates. Which of the two is payable/receivable depends on whether Libor has reached a predetermined trigger point during each periodic Libor setting. For example, a floating-rate borrower who believes that rates will not rise as quickly as the implied forward curve predicts can receive Libor and pay a below market fixed rate while Libor remains below the trigger point. If Libor exceeds the trigger, then the higher fixed rate is payable. The trigger mechanism is created with an embedded binary option. There are also commodity-linked semi-fixed swaps, particularly in the oil market. For example, an oil consumer might pay a fixed rate of 4% if oil prices stay above \$12 but if prices go below that level, he is swapped into 3.5%. That is, he has bought a swap plus a binary option on oil. See blended interest rate swap, incremental fixed swap, index amortizing/principal swap, Libor regulating swap.

Shout option: A path dependent option that allows the purchaser to lock in a minimum payout (the intrinsic value of the option at the time of the 'shout') while retaining the right to benefit from further upside. So-called because when the option holder thinks the market has reached a high (call) or low (put), he 'shouts' and locks in that level as the minimum. If the market finishes higher (call) lower (put) than the shout level, the holder benefits further. Shout options can be structured with multiple shouts, but they are very expensive.

A corporate treasurer might be bullish on US\$/Deutschmark rates but also expects the cross to be very volatile. He is worried that using a vanilla option will mean that he misses out on temporary highs. A shout call solves the problem. If the dollar/Deutschmark rate rises above the strike price, but stays below the shout level, the treasurer receives a profit of the shout level less the strike level. If the exchange rate closes above the shout level, the investor will receive that additional profit as well. The payout is therefore the maximum of (shout -- strike) and (close -- strike).

The shout option is similar to a ladder option in which profits are locked in when the underlying rises/falls sufficiently to hit a redetermined 'rung' level, but in the shout option the rungs are not set in advance. This makes the shout option more expensive than the ladder option, the more so when multiple shout are allowed. The more shouts that are allowed, the

more like a lookback the shout option becomes. The ability to lock in gains before expiry makes the shout more expensive than a standard European option, and the fact that even after a shout, the option holder effectively has another option struck at the shout level, makes it more expensive than an American-style option.

Sigma (Character omitted): The standard deviation or volatility of the instrument underlying an option.

Single-factor models: An option pricing model that incorporates only one uncertain parameter, the future price of the underlying. Such models make fixed assumptions about other variables such as the term structure of interest rates, variance and volatility. Multi-factor models which can accept more than one parameter are better able to model interest rates and volatility and are necessary to price options on a number of underlying assets (such as spread assets) correctly.

Spot rate: In currency markets, today's market exchange rate for a transaction now. In interest rate markets, the spot rate is the rate at which a single future payment is discounted back to the present. That is, where observable, the n-year spot rate is the yield to maturity of a zero coupon bond with a maturity of n-years. For maturities at which zero coupon bonds are not available, the spot rates can be bootstrapped from coupon paying bonds at those maturities since the price of these bonds is the present value of all their cash flows with each cash flow discounted at the appropriate spot rate.

Spot yield curve: The curve that plots spot rates against term to maturity. See par yield curve.

Spread: The difference between the yields on two financial assets (aside from the bid/offer).

/-lock: A structure that enables the holder to lock in a fixed spread between two assets or indices.

/-lock agreement: See roll-lock, rollover lock.

/-lock option: The option to enter into a spread-lock agreement or swap.

/-lock swap: An interest rates swap in which one payment stream is referenced at a fixed-spread to a benchmark index, often US treasuries.

/option: An option struck on the spread between two underlying assets, usually two interest rate indices. The option pays the difference if positive (call) negative (put) between the two indices. Spread caps and floors are also available. For example an at-the-money cap on the spread between US dollar Libor and the CMT rate will profit if the spread widens and lose if it narrows. A spread option on different areas of the same yield curve is called a yield curve option.

/rate differential options: See cross currency option.

/trade: In derivatives either a trade designed to profit from movements in the spread between two or more underlying indices or an options trade involving the simultaneous purchase and sale on the same underlying.

Stack hedge: Rolling short-term derivative contracts to hedge a longer term position.

Staged drawdown swap: See accreting swap.

Step function: A function that defines a fixed payoff beyond a break or barrier point.

Step payment options: See mini premium options.

Step-up (down): Applied to cashflows, option strike prices or swap and option notional principal amounts that rise (fall) according to a preset schedule or formula, to bonds whose coupon payments and to derivatives whose notional principal increases (decreases) according to such a schedule.

/down option: An option with a downward strike price reset subject to a number of conditions concerning the period over which the resets occur and the trigger events for it occurring.

/up bond: A bond that initially pays the investor an above market yield for a short non-call period and then, if not called, steps-up to a higher coupon rate. If the bond is not called, the stepped-up coupon is below prevailing market rates (if not the bond will have been called). The investor initially receives a higher yield as he has implicitly sold a call option.

/up (down) swap: A swap whose notional principal rises/falls to match the known drawdown or amortization of an asset or liability. A company with an amortizing floating-rate loan would be a natural user of a step-down (amortizing) swap, a company with a multiple disbursement loan facility that knew its schedule for drawdowns would use a step-up swap. Sometimes also used of an interest rate swap whose fixed rate steps-down over the life of the swap.

/up cap: A cap whose strike goes up for subsequent periods at predetermined levels. See adjustable strike cap, momentum cap, periodic cap.

/up recovery FRN (Surf): The first of the deleveraged CMT FRNs so-called because it has a coupon floor that steps up over time. The non-stepped version is a **floating-rate note** which pays coupons linked to yields on comparable longer-maturity bonds and incorporating a high coupon floor and some participation if **rates** rise (via a higher coupon).

The **notes** appeal to investors who wish to obtain a higher **floating-rate** yield than can be achieved with either CMT or vanilla FRNs. The risk is that any yield curve flattening will result in a lower yield advantage over vanilla FRNs. The investor is effectively short Treasury bonds and long an in-the-money T-bond call option. They also appeal to investors who can classify them as standard 0.25 duration floaters (because of the quarterly resets) while earning a yield pickup on such instruments. It should be noted that they do not actually have a duration of 0.25; instead the duration characteristics are asymptotic, complex and not intuitive.

For example, a five-year dollar Surf might pay  $0.5 \times (10\text{-year CMT}) + 1.50\%$  subject to a coupon floor of 4.50%. The floor is higher than yields on benchmark Libor FRNs. In low interest rate environments the SURF will outperform CMT FRNs but, due to its 50% deleverage, will underperform as rates rise. Like the CMT FRN the note contains mismatch risk between index maturity and reset frequency. This risk is complex. The embedded floor means that volatility will also affect the value of the **notes**.  
Step-lock option: See ladder, ratchet option.

Stepped: When used of bonds denotes a bond with a fixed first coupon which then reverts to predetermined **floating rate** formula.  
Differs from a set-up coupon in that only the first coupon acts as a step.

Usually this first coupon is extremely attractive in comparison with vanilla FRN rates and is an encouragement to the investor to buy highly structured assets that take strong directional views. For example, leveraged inverse floaters and leveraged floaters often have a fixed first coupon.

Sticky floater: See ratchet floater.

Stochastic: Literally 'guessable'. A technical term from statistics.

/variable: A random variable with zero mean and finite variance.

/process: A process which involves a random variable the successive values of which depend on each other in some way.

/volatility: An assumption that volatility is a stochastic variable is made by some option pricing models. It is a more realistic assumption than that of the constant volatility assumed in early single-factor models. For example, it can help explain the volatility smile effect as it reduces the value of at-the-money options and increases the value of out-of-the-money options. This is because models that incorporate this assumption allow a greater probability to large movements in the underlying than simpler models.

As stochastic volatility is a non-traded source of risk, using it as an input into pricing models loses their completeness -- that is the ability to hedge options with the underlying **asset**.

Stoption: See barrier options.

Straddle: A long (short) straddle is the **purchase** (sale) of a put option and a call option on the same underlying with the same strike price and the same maturity. The position is usually initially delta neutral and so will only have equal numbers of puts and calls when the underlying is trading close to the exercise price. A long straddle position (which can also be constructed from a two long puts and a long position in the underlying or two long calls and a short position in the underlying) will make money if volatility is high; a short straddle position exposes the holder to unlimited downside but will make money if volatility is low.

Strangle: A straddle with two exercise prices used when the underlying asset lies in the range of the two exercise prices and has been showing low volatility. A long (short) strangle would comprise the purchase (sale) of a put option and a call option on the same underlying with the same expiry date but with strike prices set equally out of the money (a position sometimes called a combination) or, in some cases, split. Straddles and strangles involve combinations of two options, which differentiates them from, say, butterflies, which involve combinations of four options.

Strike price/rate: The pre-determined level at which an option can be exercised.

Structured asset: Any bond, note or deposit whose cashflows have been altered by the attachment of a derivative instrument. Structured asset pricing is simple in context -- the derivative is priced as normal and the bond cashflows are altered as required -- but can be complex in practice. The duration, mark-to-market value and other characteristics of structured assets are not always intuitive and should be explored carefully.

Subsidized swap: A swap that pays a fixed-rate below the market rate. However, if rates rise above a certain trigger level, the fixed-rate payer will pay a floating rate set below the then prevailing rate. The result is

a below market fixed swap that reverse to a below market floating rate swap when the trigger is hit. The subsidized swap is the combination of a pay-fixed swap and the sale of a cap. The cap premium is used to reduce the fixed rate paid under the swap

So, for example, the sale of a five-year sterling cap at 10.60% will earn the seller 50 bp semi-annually. This amount improves the five-year swap rate from 8.83% to 8.33%. If sterling Libor exceeds 10.60%, the client will be put back into floating at a subsidized rate of Libor less 2.27%. The instrument is ideal for borrowers who want to lock in their floating rate, but do not want to pay the market rate as they believe the implied forward curve significantly overstates future **rate** rise. It generates an attractive fixed **rate** as long as their **rate** ceiling is not breached. And even if it is, they still do better than competitors paying vanilla **floating rates**.

Superfloater: A **floating-rate note** whose coupon increases faster than interest **rates** rise. Most commonly the coupon **floats** at two times an underlying index, usually Libor, minus a fixed spread. The structure appeals to investors who wish to obtain a high yield in a bearish environment in return for a lower current yield. A typical superfloater might provide an initial running yield up to 200 bp less than a vanilla FRN, but as rates rise it will produce higher yields as well as capital gains. The investor has effectively borrowed fixed to purchase a leveraged -- in this example two times -- amount of FRN. Put another way, a portfolio that consists of a two-times leveraged superfloater combined with a fixed-rate note of the same notional amount and maturity is equivalent to a regular FRN of twice the notional amount. This should alert investors to the fact that superfloater exhibit negative duration.

These structures almost always incorporate a floor -- owned by the investor -- that ensures coupons do not become negative. Superfloater characteristics are useful to corporations when structured as superfloater liabilities -- the combination of a floating rate liability (that is, borrowing floating) and receiving floating in an interest rate swap of the same notional principal. This structure creates a net coupon of two times Libor less the fixed swap coupon. It might be used by a corporate with an existing liability whose profits fall when interest rates fall, but whose profit losses are greater than any benefits of lower debt funding costs, perhaps because it has little debt.

/swap: A fixed-for-floating interest rate swap with a reverse risk reversal applied to the floating-rate leg.

Surge options: An option whose strike price is reset on a daily basis to a fixed spread above or below a moving average. This hedges against the risk of rapid price changes rather than absolute price trends over longer periods. Commonest in the commodity markets, a put surge option on the price of crude oil could work like this: whenever the spot oil price falls below the 45-day moving average less two cents, the option is in-the-money. The settlement amount is determined by the difference between the spot price and the strike price multiplied by the number of barrels to be priced each day. A call would move into the money if the spot price moves above the moving average plus a fixed spread.

Swap: See under specific entries.

Swap curve: See par swap yield curve, zero coupon swap curve.

Swap differential (difference) agreement (SDA): An interest rate basis swap agreement to exchange or lock in the differential between a bond or note yield and the swap rate of the same maturity. An SDA contract moves with



reference to the difference between the same point on two different yield curves. The SDA allows an investor to profit from the widening or narrowing between two yield curves. The SDA is customized with defined settlement dates, a defined value per basis point move, and one defined point on two yield curves. All payments are made in one currency so there is no currency exposure.

For example, an investor might believe that the differential between the two-year Lira swap rate and the two-year Swiss franc swap rate will narrow over the next year. The investor can enter into a narrowing Lira-Swiss franc SDA for one-year settlement. The value per point can be set at any value in either currency, say Swfr 10,000. The SDA price is given in terms of basis points. If at maturity the difference between the two-year swap rates in the two currencies has fallen below the SDA entry level, the investor will receive Swfr 10,000 for every basis point lower. If the difference is higher than the entry level -- that is, if the curves have widened -- the investor will lose this amount. The entry price is calculated by taking the difference between the implied forward rates from the two yield curves. In the example, the one-year forward two-year Lira and Swiss franc rates are calculated and the difference is the SDA price. Investors who buy the SDA expect curves to widen; those who sell expect curves to narrow.

Swap rate: The yield to maturity of the swap. That is, the price of the swap which, when used both as a fixed-rate payment and an internal rate of return, will equate the present value of the two payment streams. On a vanilla interest rate swap, the bid swap rate is the fixed rate a marketmaker will pay to receive Libor and the offer is the fixed rate a counterparty must pay to receive Libor. The swap rate is determined by the term structure of interest rates, credit and transaction costs. In currency swaps, swap rates are the forward points on a currency rate -- that is, the adjustments to the spot exchange rate that have to be made to compensate for interest rate parity differences between currencies. See interest rate swap.

Swap rate lock: An agreement that locks in a predetermined swap rate level for a forward swap.

Swap spread: The difference (positive) between swap rates and the relevant government bond market. The spread reflects the credit differential between the swap and government markets but in practice is also heavily influenced by supply and demand factors in the swap market. A glut of fixed payers will widen the spread. A glut of swapped new issuance will reduce it. The spread in any individual transaction will also be affected by the relative credit qualities of the counterparties to the transaction: a triple-A bank marketmaker will quote a wider swap spread to a single-B corporate than to a double-A supranational entity.

Swap spread lock: The spread equivalent of the swap rate lock which guarantees a future fixed-rate payer (receiver) a maximum (minimum) spread over a specified benchmark index (usually a government bond rate) in a forward swap.

Swaption: The option to enter into a swap contract. The simplest swaption is an option to pay (payer or put swaption) or receive (receiver or call swaption) fixed **rate** in an interest **rate** swap. This can be considered an option to buy or sell a fixed-**rate** bond versus selling or buying a Libor flat **floating-rate** **note**. Typically, the option period is for a year or less on swap maturities of between three and ten years. So a typical transaction might be to buy a three-month payer swaption with a strike price of 7.50% for cash settlement on a notional principal of \$50 million. If swap rates rise to 8.00%, the option would be exercised and a cash payment made to the

swaption buyer. (Most swaptions are cash-settled.) Swaptions are usually European style, although American-style swaptions, allowing the buyer of the option to enter into a swap at any time after the exercise date, typically on a payment date, are available. Swaptions are also available on currency and basis swaps, commodity swaps, and many other exotic swaps.

Switch option: See chooser option.

Switchback option: The simultaneous purchase of a capped call (floored put) and an up-and-in put (down-and-in call). The instrikes of the knock-in barrier options typically equal the cap/floor strike prices. If the underlying hits the cap (floor) levels, these option would be automatically exercised while of the same time the knock-ins would be activated creating standard puts (calls) for the remaining life of the position. The holder of the position would typically set the strikes at a point he believed to be around a peak (trough) in the underlying. The position benefits from that level being reached and then switches back from call to put (or vice versa) as the underlying itself switches back, retreating (rising) from its peak (trough).

Synthetic: In financial contexts used of any instrument constructed from others so that its cashflows and sometimes risk/reward characteristics replicate those of another asset or liability. Such instruments are created either because certain users cannot buy the components separately or because an arbitrage opportunity allows the synthetic to be purchased (sold) more cheaply (expensively) than the straightforward product. Almost any position or instrument can be constructed in this way. For example: a call option can be constructed by the simultaneous purchase of a put option and the underlying; a put from a long call and short position in the underlying. A forward can be constructed from a long European-style call and short European put with the same expiration and strike price. See replication.

/agreement for forward exchange (SAFE): The generic term for exchange rate agreements (ERAs) and forward exchange agreements (FXAs). While forwards involve the actual sale and purchase of the underlying, SAFEs are notional principal contracts, like FRAs and are cash settled, FXAs with reference to both the spot rate and forward premium/discounts, ERAs wit reference only to the latter. They were created to overcome capital adequacy requirements which constrained banks in the forward market rather than as a result of demand for an alternative to forwards.

/forward: The combination of a long European-style call and short European put with the same expiration and strike price.

Systemic risk: The bogeyman of derivatives regulators, this is the risk that derivatives permit the transmission of risk across previously unrelated markets, thus making it more likely that a large shock in one will be transmitted (with negative consequences) to others. It is also used of the risk supposedly inherent in the concentration of derivatives business at a small number of large financial institutions. If -- so the argument runs -- one of these were to fail, the whole financial system would be threatened. There is no proof that this is true, despite the regulators' concerns.

T

Table-top: A ratio spread in which the purchase of on option is paid for by sales of the same option at two different strike prices. So called because of the representation of its payout profile.

Tail: The end (left or right hand section) of a probability distribution.

Also used by futures traders either of the change in the number of futures contracts needed to hedge a position because of variation margin flows or of the number of excess futures contracts in a basis trade. Also used in the bond or note markets of a security with only a short time to maturity. See kurtosis.

Tau: Used by small sections of the options community for vega.

Tax-exempt swap: An interest rate swap with one or both payment streams based on tax-exempt US municipal bond yields or a tax-exempt index such as the JJ Kenney.

Tax straddle: Various tax-driven strategies which use swaps and options to make any deductions available early, to defer income, to convert non-deductible cashflows into deductible and vice versa and to window-dress balance sheets by tailoring on- and off-balance sheet portfolios advantageously.

Term structure: The interrelationship of underlying assets of different maturities.

/of interest rates: The interrelationship of interest rates of different maturities. The term structure of interest rates relates spot rates to the term to maturity in the form of the spot or zero coupon yield curve. Modelling the relationships between spot rates at different points in the curve is crucial to the pricing of interest rate derivatives since even a short-term instrument will span several spot rates and so its price will depend on how they interact with each other and the rest of the term structure. The dynamic nature of the term structure has led to the development of multi-factor pricing models where the factors represent changes in the level, slope and curvature of the term structure.

/of volatility: The volatility of the prices or rates of the underlying at different maturities. For example, studies of the term structure of interest rates show that spot rates at different maturities have different volatilities. A basic observation is that long rates are less volatile than short rates and that long-rate volatilities are linked to current short-rate volatilities by mean reversion: short rates tend to be pulled back towards a long-term average. The volatilities of each spot rate are modelled to produce a term structure of volatility -- that is volatility plotted against term to maturity. This is an important input into term structure pricing models.

The term structure of volatility is also sometimes a reference to the differing implied volatilities of options with different maturities. Short-dated options' implied volatilities change faster than those in longer-dated options. Volatility itself also exhibits mean reversion.

/model: A pricing model that uses the information contained in the current term structure of interest rates and also the volatilities of each of the spot rates as inputs into binomial, trinomial or multinomial trees which value the underlying debt instrument at each node, so giving the basis for a valuation of an option on that instrument. Also called whole-term structure models. See Ho-Lee, Heath-Jarrow-Morton.

Termination: Cancellation of a risk management agreement or derivative transaction upon an agreed event and on previously agreed terms and conditions.

Theta (Character omitted): The sensitivity of option premium to the passage of time with the price and implied volatility of the underlying unchanged. The longer the maturity of an option, the more likely it is that the price

of the underlying will exceed the strike price of the option, the more likely the option is to be exercised and so the more valuable/expensive the option. The amount of the option's value that is derived from this phenomenon is the option's time value and the rate at which this time value decreases as the option's life shortens is called theta or time decay. An option with a theta of 0.075 will lose 0.075 of its value as the number of days to expiry decreases by one.

Time swap: See accrual swap.

Time value: Often used to mean the difference between an option's premium and its intrinsic value or parity and, by implication, a simple function of the option's time to expiration. In fact, though in general the longer an option has to run the more expensive it will be, the relationship between time and premium is a function of the volatility of the underlying and the cost of carry of the option.

Total return: All the cashflows and capital gains/losses associated with an investment.

/index notes: A bond whose coupon consists of the total return from a bond or equity index plus or minus a spread. For example, such a note might pay the Merrill Lynch Corporate Bond Index total return plus 25 bp. Since the investor cannot incur negative coupons any negative returns are rolled over and, if necessary deducted from principal at the end.

/option: An option whose payout includes any dividends or interest payments accruing to the underlying over the life of the option. Particularly common in the context of equity index derivatives where index tracking is important.

Touch option: Used of any barrier options and digital options which are activated or deactivated or payout when the underlying touches as opposed to breaches a pre-agreed strike level.

Trigger: Used of many derivatives, derivative combinations and structured notes whose payout is determined or altered by the underlying trading at or through a pre-determined trigger or barrier level.

/forward: A zero cost FX structure in which the purchaser enters into a synthetic or standard outright forward contract at a rate significantly more attractive than the prevailing market rate but which is knocked out if spot reaches a pre-determined trigger level (set in-the-money-forward) either at any time before the expiry of the structure or, in the case of an at-maturity trigger forward, at maturity. The at-maturity trigger forward is less risky because it can only be knocked out if spot hits the trigger at maturity, but in exchange for this the knock-out level is closer to the current spot than with the trigger forward.

So, in a standard trigger forward, if the outright forward rate for US\$/Lit was 1668, a trigger forward could be constructed so that the holder could sell US\$ against Lira at 1710 in nine months' time unless the rate hits 1450, in which case the structure is knocked out. If the dollar appreciates, the holder of the trigger forward is obliged to sell dollars at 1710; if it depreciates against the lira but does not hit 1450, then the holder can sell at 1710; but at 14550, the whole structure knocks out.

The trigger forward is a combination of a purchased forward and a sold barrier option. The premium received from the sale of this option is what gives the holder of the trigger forward the better-than-market forward rate.

The product is useful for those who believe that there will be a limited

move in their favour and who think that the knock-out level is unlikely to be trade. However, if a synthetic forward contract is being used, should the market trade unfavourably, the holder will be obliged to buy (sell) the underlying. The potential benefit to a hedger is that he is able to cover the exposure at a more favourable rate than the current forward. If the trigger level is reached though, the hedge ceases to exist, leaving the exposure unhedged in an unfavourable market.

More complex variants, known as double trigger forwards, incorporate the sale of more than one barrier option to give on even better forward rate but with the possibility of losing upside. An example might be a structure that offered a dollar/yen forward rate of 105, knocked-out at 90 and with a knock-in dollar call at 111. Between 105 and 111 the holder sells dollars at the prevailing market rate.

/option: See barrier option, digital option.

/swap: See curve lock swap.

Tri-nominal tree: An extension of the binomial method of option pricing in which the variable being modelled (the price of the underlying) is allowed three possible outcomes instead of just two: move up, move down or stay the same. This provides greater flexibility and is useful in pricing more complex products.

Tunnel option: A set of collars with constant strike price covering non-overlapping periods forward from the trade date.

U

Up-and-in: A knock-in barrier option activated when the underlying moves up the rough a pre-agreed instrike.

Up-and-out: A knock-out barrier option deactivated when the underlying moves up through a pre-agreed instrike.

V

Variable maturity swap: A swap whose maturity is uncertain but whose range is predefined. For example a swap whose maturity is between two and three years contingent on Libor reset dates.

Variable strike cap/floor: See periodic cap/floor.

Variance: The statistical measure of how widely a variable is dispersed around the mean.

Vega: The first derivative of the option premium with respect to volatility, vega measures how much an option's value changes for a small movement in volatility. Also known as tau, lambda, epsilon, kappa and eta, it is always positive and is expressed either as the currency change in the value or price of an option for a percentage point change in the standard deviation of the underlying or in points per percentage change in volatility.

At-the-money options are most sensitive to changes in volatility (their vega is highest) while deep in-the-money and deep out-of-the-money options are relatively insensitive. Options are also more sensitive to volatility the longer their time to maturity. Vega is extremely important in hedging options positions because implied volatility can change, reflecting a change in view about further volatility, without any change in the price of the underlying. This means that the option premium may change in value, and so a hedge position may change in value, even if the position is delta and gamma hedged.

Vertical spread: The simultaneous sale of one type of option (call or put) and purchase of the same type of option with the same maturity but a different strike price. See put spread, call spread, horizontal spread.

Volatility: The measure of a variable's tendency to vary over time. This is crucially important in option pricing since the more volatile the price, rate or return on an asset is, the more likely it is to reach the option strike price and so the more valuable the option. In the Black-Scholes world, volatility is influenced by, among other things, the square root of time: the longer the life of the option, the greater the variance (Black-Scholes does not capture mean-reversion) and the longer the period over which that volatility can work in favour of the option buyer. Annualized volatility is the commonest measure and is usually calculated as the annualized variance or standard deviation of the underlying price, rate or return. Historical volatility is not always a good predictor of future volatility and so is used with caution as an input into pricing models. Whether an option is cheap or expensive relative to its theoretical value depends on the volatility assumed or implied in the model.

Option pricing models differ in their approach to volatility but many make a number of assumptions which affect the prices they generate. Most importantly, they assume that volatility is constant (stationary) over time. It is not and later models can incorporate this fact, some assuming volatility to be stochastic. And they assume that the continuously compounded returns of the asset (the natural logarithm of the asset price relatives) are normally distributed with a variance that is proportional to the time over which the price change takes place. This implies that volatility will increase indefinitely with time. In fact, financial assets exhibit mean reversion.

/rate agreement (VRA): Agreements to buy and sell volatility only.

/skew: In statistics, skew is the difference between an actual distribution and a benchmark (usually lognormal) distribution. Volatility skew most commonly refers to the difference in implied volatility between out-of-the-money puts and calls. In many options markets, the former have higher implied volatilities than the latter, usually explained by supply and demand. When traders talk of trading the skew, they are generally talking about trying to predict the slope of the implied volatility curve and choosing an option position that profits if their prediction is correct. A negatively sloped implied volatility curve implies a negatively skewed probability distribution for the level of the underlying. The skew implied by the Black-Scholes model is small and positive.

/smile: refers to the influence of the strike price of an option of a given maturity on its quoted implied volatility. Generally the implied volatility of in-the-money and out-of-the-money options is greater than that of at-the-money options. If the implied volatilities are plotted versus the strike, a curved line resembling a smile is obtained.

The Black-Scholes model implies that stock volatility is constant. If true, the implied volatility from European options of all strikes and maturities would be identical. In fact, implied Black-Scholes' volatilities depend on the maturity and strike of the European option in question. That is, the market may believe that extreme upward and downward movements are more likely than allowed by the Black-Scholes model. In this case it is said that the implied market distribution is more leptokurtotic than implied by Black-Scholes. This can be seen when the implied volatility smiles -- is convex in the exercise price. In extreme cases the smile can create a two humped probability distribution, unlike the one-humped probability distribution predicted by Black-Scholes.

/term curve: See term structure of volatility.

/trading: Taking options positions that will profit not from moves in the price of the underlying but from changes in volatility. Traders can take views on absolute levels of volatility by buying and selling combinations of options -- classically delta-hedged straddles and strangles. They can also trade future actual versus present implied volatility, profiting if future actual volatility is more or less than the implied volatility of the position when the trade is put on. So if they believe that the volatility implied by an option is too low, then the option is cheap and they will buy it, delta hedging against directional risk in the underlying.

Buyers (sellers) of volatility profit when the underlying is more (less) volatile than the implied volatility predicted. These trades are nondirectional, that is they are hedged against absolute price moves in the underlying. And traders can arbitrage between the different volatilities of options at different maturities.

The total exposure to volatility of a position is measured by the weighted average of vega. A positive vega position is used if a rise in volatilities is predicted and a negative vega if a fall is foreseen.

W

Wall option: An option structure that profits to the extent that the underlying trades below (above) a certain predetermined level. For example, in an FX wall, a customer specifies a currency rate and pays an upfront premium. For every day during a set period that the spot fixes above (below) the specified rate, a portion of the maximum total payout is locked in. If the spot fixes below (above) the trigger level every day, then the maximum payout will be due. If none of the days satisfies the required condition, then no pay-out will be due. The name wall option is derived from the fact that the pay-off diagram for the option shows a rectangular area of potential payout bounded by a wall representing the maximum profit. Like the simpler range binary option, wall options can be combined with deposits/notes to create yield enhanced fixed-income instruments.

Warrant: A securitized, generally medium- to long-term, option.

Weekly reset forward: A synthetic FX forward where each portion of the contract needs to be activated on a weekly basis. For each week that a pre-determined fixing condition is established, a portion of the contract is locked in. If none of the weekly conditions is satisfied, then the currency is bought (sold) at a more favourable outright rate than the initial prevailing market rate. The product is an alternative for those with cash flows spread over a period of time or for balance sheet hedgers. It provides an opportunity to deal at a rate significantly better than the forward outright rate but only for a portion of the amount corresponding to the frequency that spot has fixed above (below) the trigger level.

Weighted average rate option: An average rate option in which the weighting of each periodic price or rate used in the averaging process varies according to a predetermined schedule. These options are useful if the timing and magnitude of cash flows is known but the price or rate is unknown.

Whole-term structure pricing model: An interest rate option pricing model that takes into account the relationships between spot rates at different points in the curve. Such models are designed to enable the exposure on all interest-rate derivative products to be aggregated. For example, the volatility exposure created by a long position in swaptions should be able to be offset by a short position in caps so that only the net volatility is hedged. See term structure of interest rates.

Wiener process: The description of movements in a variable when the change in its value in a short period of time is normally distributed and the changes in two non-overlapping periods of time are uncorrelated.

Window reset swap: A type of periodic reset swap in which the floating-rate payer is permitted to reset Libor at any time within each reset period, as opposed to the beginning of each period as in a conventional swap, at no additional cost. This embedded option allows the floating-rate payer immediately to take advantage of windows of opportunity presented by declining rates or sudden dips in rates.

Worst of two assets option: A rainbow option in which the holder obtains the returns from the worst performing of two assets.

Write: To sell an option.

Y

Yield curve: A plot of interest rates versus time.

/accrual note: A combination of the CMT-Libor (or other two indices) differential note and the binary or fixed accrual note. A yield curve accrual note might pay a fixed 4.75% coupon in year one, and then 7.125% if 10-year CMT rates minus six-month Libor is between 1.25% and 2.25%. The advantage of using a spread as opposed to an absolute index is that its volatility is lower.

/option: An option on the spread between interest rates at two different points on the same yield curve. They are usually struck on the yield of a longer maturity bond less the yield of a shorter maturity bond. Yield curve calls profit if the yield curve flattens, puts if it steepens. These products allow investors to take a view on the shape of the yield curve without taking a directional view on the underlying bond market. The term is sometimes also used of options on the spread between yield curves in two different currencies -- say, that between five-year French and five-year German interest rates.

/(arbitrage) swap: A swap in which the counterparty moves up or down the yield curve twice in the same swap, yield curve swaps Are a type of basis swap in which a shorter-term floating-rate index is swapped for a longer-term floating-rate index. For example, a counterparty might pay three-month Libor and receive the 10-year Constant Maturity Swap (CMS) rate.

A yield curve steepening trade is one in which the buyer believes that the spread between short and long rates will widen. He might choose to receive the 10-year CMS less a spread and pay six-month Libor. This trade profits if 10-year rates go up and/or Libor goes down.

A yield curve swap can be viewed as a series of forward swaps each of which starts on the yield curve swap's reset dates. (This is also one way to hedge them but in practice it is expensive and hedging is done on a portfolio basis).

In the commodity markets such swaps are known as contango and backwardation swaps depending on whether the forward curve is positively or negatively sloped.

You choose option: See chooser option.

Z



Zero-cost (premium) collar: A collar in which the premium received for the sale of one component of the collar exactly offsets the premium paid for the other component.

Zero-coupon swap: Functionally a loan, this is an interest rate swap in which the floating payment streams are usually conventional but the fixed-rate payments are deferred until maturity. It can also be used to hedge the payment stream on a zero coupon bond. See reverse zero coupon swap.

Zero-coupon yield curve: The spot rate curve of the observed or interpolated yields to maturity of default-free zero coupon bonds plotted against maturity. From this a forward rate curve or forward term structure can be implied to give the markets current expectation of future spot rates.

Zero-premium cap/floor: See self funding cap/floor.

Zero strike price option: Options with a strike price of zero or close to zero. These are tax-driven and are used as a way of synthetically transferring securities between counterparties where actual transfer would incur heavy taxation.

Zeta: See vega.

#### Example of an FX range **floater**

Most range FRNs structured these days are either FX accrual **notes** or binary FX accrual **notes**. These are range **floaters** whose range is not based on Libor but on a particular reign exchange cross-**rate**. The difference between the two instruments is that a binary accrual **note** pays no more interest if the range is broken, regardless of where the underlying trades in future, while a straight accrual note resets every three months.

A common example of the use of an FX accrual **note** might be an investor who believes that the US dollar/yen **rate** will remain in the 90 to 105 range over the next six months. They could enter into a range **floater** deposit for six months that paid Libor+250 basis points on days when the dollar/yen trades within that range and pays zero when outside this range.

Assuming that the investor would alternatively earn Libor flat on his deposit, the client will break even with on ordinary deposit if the FX rate trades within the range for 127 days out of 180 days  $((6.00 + 2.5)/6.00 \times 180 \text{ days})$ . If they believe that the FX rate will be in this range less than 127 days, they should not enter the range floater.

The range floater is constructed from a series of doily digital options. Each day the underlying is within the range, one digital is automatically exercised. The range floater will accrue interest equal to the digital payoff. The cost of the series of digital options is the original Libor that the investor potentially gives up. The expected payout of each digital is then averaged (weighted for the maturity date) and the result is the coupon on the note or deposit, in this case Libor plus 2.50%.

#### Example of a foreign exchange knock-out option

Ordinary FX options provide the buyer with unlimited upside and a known downside--the premium. The knock-out feature limits the upside given to the buyer and therefore makes the option considerably cheaper.

When an investor purchases an ordinary FX option, the payout depends on

where the spot rate closes on a particular day (the maturity of the option). With the knock out feature, if at any time up to and including the maturity, the knock-out level (the outstrike) is reached, the option will expire worthless. Where the barrier on a call is above the spot, the option is known as an up-and-out call. Where the barrier on a call is below the spot, the option is known as a down-and-out call.

So, a treasurer may have a view that the US dollar will strengthen from current lows against the Yen over the next six months (current spot 95). He could purchase an ordinary six-month dollar call/Yen put at a cost of around 3.50%. Alternatively, he could purchase a dollar at-the-money call with a knock-out at 109.00--that is, an up-and-out call. This would reduce the premium to just 1.00% with the following result:

If the dollar does strengthen, but trades above 109.00 over the life of the option, the call will expire worthless.

If the dollar strengthens, but never reaches 109.00 over the life of the option, the call will behave like an ordinary call and the investor will exercise the call and make the same profit as the ordinary call.

If the dollar does not close above the call strike (99.00), the option will expire worth less like an ordinary option.

The premium reduction is the result of the fact that while the price of a vanilla option takes the entire normal distribution of possible prices for the underlying into account, the knock-out removes many of those possible values. The knock-out feature is very sensitive to moves in the underlying, particularly when the knock-out price is approached. Marking these products to market is therefore less straightforward than with standard options.

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**The paving of Wall Street in Eastern Europe: establishing the legal infrastructure for stock markets in the formerly centrally planned economies. (Special Section: Privatization)**

**Philbrick, William C.**

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**Abstract: The development of stock markets in Eastern European nations in essential to sustained**

**economic growth and continued conversion to market-based economic policies. Capital improvements are best financed through equity because debt financing fosters dependence and can lead to increased financing merely to make debt payments. Privatization and stock market development are interdependent. More private firms increase the activities of equity markets, and increased interest in equity investments will advance privatization efforts.**

**Text:**

## I. INTRODUCTION

The Cold War has ended, and by all accounts, Eastern Europe has spurned the yoke of communist domination.(1) Idealists celebrate the advent of democracy in Eastern European nations such as Hungary, Poland, and Czechoslovakia, and newly independent, sovereign states have emerged from the once monolithic and omnipotent Soviet Union. While some people in these formerly planned economies enjoy by the fruits of capitalism, the road to economic and political reform has not been easy. Although state socialism may have been rejected, the Eastern European states have accepted capitalism only begrudgingly; difficult transition predominates in Eastern Europe and the former Soviet Union.(2)

A lack of capital has been one of the most formidable obstacles to a sustainable free market.(3) Industry and agriculture, both vital components of a functioning economy, rely on capital to generate output, replace broken parts, and modernize outdated, inefficient processes. Modernization is particularly essential as nations compete more with each other in an increasingly integrated global economy; a national economy in today's world must be able to effectively compete with other national economies or risk economic isolation. Accordingly, each nation must implement the latest technological innovations. This task is impossible without marking capital.

A variety of sources generate working capital: foreign and, borrowing, and equity markets are key sources. For developing nations, foreign aid has typically been a source of capital, taking the form of direct grants from industrial nations or international organizations. Arguably a form of charity foreign aid has its drawbacks. First, it is finite and generally fails to impact the recipient nation substantively. Second, fickle, prevailing politics influence the flow of funds. Third, recipients of foreign aid frequently misallocate the funds. Foreign aid may be channeled to industries lacking the ability to effectively utilize such aid or to unscrupulous government officials who pocket the funds. Nevertheless, the major drawback of foreign aid is that, far from enabling a nation to become economically self-sufficient, it tends to foster dependency.(4)

Borrowing also carries a number of negative implications. As demonstrated by the problems of Latin American nations in the 1980s, **debt**

### **obligations**

can burden a national economy and contribute to persistent government deficits.(5) Furthermore, banks and foreign governments are often hesitant to lend money to borrowers who have no demonstrable ability to repay the loans. This fact points to a conundrum: nations and businesses need funds to generate economic development, yet only economic development enables these nations to acquire such loans.

Equity markets, otherwise known as stock markets,(6) provide a source of capital for economic development without the drawbacks associated with foreign aid and borrowing. Increased foreign **debt**

### **obligations**

and concern for steady capital inflows have led many

developing countries to focus their efforts on building viable stock markets.(7) Several nations have implemented measures to shift domestic business reliance away from loans and toward greater equity investment.(8)

Using stock markets as a source of capital for economic development makes sense in the current international financial environment. Although banks continue to play the major financing role in some nations,(9) there is a definite global trend away from reliance on the traditional bank lending system(10) toward a liquid securitized(11) financial system.(12)

For East European economies to integrate themselves into the free market environment, they must develop sustainable securities markets, particularly, stock markets. These markets can generate the funds necessary to fuel economic development and permit integration into the global economy. Until such change occurs, the specter of Communism, which lies dormant, ready to reassert itself if the transition to a free market system falters, will not be completely eradicated.

This Article will present and analyze the legal infrastructure necessary to the creation of viable stock markets in Eastern Europe. Part II will lay the framework for the paper by describing the economic and historical background of the region. Part III discusses the reasons for emphasizing equity over debt markets, focusing particularly on current privatization plans in the region. Part IV outlines major considerations in formulating the legal infrastructure for regional stock markets. Part V will summarize the future prospects for viable stock markets in Eastern Europe. All discussion will refer to primary rather than secondary markets, unless otherwise specified.(13) Similarly, discussion will focus on Hungary and, to a lesser extent, on Poland and the former republic of Czechoslovakia,(14) unless otherwise specified.

## II. EASTERN EUROPE'S ECONOMIC ENVIRONMENT

### A. Economic Background

Eastern European nations have grappled with their **debt obligations**

in the 1990s,(15) although not as profoundly as many developing nations did in the 1980s.(16) For the most part, Hungary, Czechoslovakia, and Poland have managed their obligations better than their neighbors.(17) Responsible debt management in turn contributed to the global perception that those nations offered more hospitable investment environments than other Eastern European nations. This image has spurred larger private capital inflows into these countries than other former Soviet satellites.(18) However, compared to other developing nations, Eastern European nations have lagged far behind in attracting direct and portfolio equity investment capital,(19) reflecting a continuing reluctance of the industrialized nations to invest in the region.(20)

The unsatisfied need for an influx of foreign capital into Eastern Europe has resulted in a productivity gap with more advanced industrial countries.(21) Domestic sources of capital have proven insufficient for generating economic development in the region. Not only have the amounts been insufficient, but available capital has been inefficiently allocated.(22)

The nations of the region need substantial amounts of capital to bring East European incomes close to the average per capita income of the European Community. Recent statistics dramatically illustrate this gap. In 1990, European Community per capita income was approximately at \$15,000 (1988 prices) and was expected to reach \$20,000 by the year 2000.(23) In comparison, the average per capita income using 1988-1990 prices and exchange rates) of East European nations is substantially less: Czechoslovakia, \$6000; Hungary, \$5000; Poland, \$3500; USSR (pre-dissolution), \$2500.(24) To reach the European Community's 1990 income level by the year 2000, economists estimate that the former Soviet republics, Czechoslovakia, Hungary, and Poland would need respective GDP growth rates of 20%, 9.5%, 11.5% and 15.5% between 1991 and 2000.(25)

A corresponding amount of domestic savings or foreign investment, or a combination of both, is required to reach these growth rates. Based on

1989 actual domestic savings rates, Czechoslovakia, Hungary, and Poland lack sufficient domestic savings to finance the investment necessary to match EC growth rates in ten to fifteen years.(26) Consequently, these nations also need foreign investment to finance economic development. Stock markets can play a critical role in supplying capital to offset the shortfall of domestic savings throughout Eastern Europe and the former Soviet republics.(27)

#### B. Historical Background of Stock Markets in the Region

Most Eastern European nations, and a number of the former republics of the Soviet Union, have established or are establishing their own stock markets to attract foreign and domestic investment capital.(28) Domestic debt markets also have emerged in those nations as part of all embryonic securities market. Consistent with their pre-communist stock market traditions, Hungary, Czechoslovakia, and Poland have led the development of stock markets. Budapest and Prague first established stock exchanges in 1864 and 1871, respectively.(29) After World War I, stock markets were founded in other regional cities: Belgrade, Bratislava, Brno, Ljubljana, Warsaw, and Zagreb. All of these stock exchanges competed among themselves and with the major regional stock exchange in Vienna. Yet these stock exchanges were not stock exchanges in the modern sense, because bills of exchange and foreign currency transactions outpaced equity trading as the most common transactions.

Despite the existence of these regional stock exchanges, regional businesses were more likely to turn to banks in Vienna, Prague, and Budapest for financing. Scandals at the turn of the twentieth century, involving fraud and bribery undermined confidence in the stock exchanges as a source of finance.(30) The Prague Stock Exchange was an exception; strict control over trading by Czech authorities prevented similar malfeasance. Ultimately, World War II ended all stock market activity in the region.

Due to Communist influence following the war, securities activity remained dormant in Eastern Europe until the early 1980s, when Hungary began flirting with market economics by outlining rules for the issuance of bonds.(31) Within years, a respectable fixed-rate corporate bond market existed in Hungary. However, all Hungarian corporate bonds issued by businesses carried the Hungarian government's guarantee, unlike similar bond issues in the West. Further, all bonds contained the same fixed interest rate, which was substantially higher than domestic rates on long-term bank deposit.(32) Investors thus incurred no risk, rendering any market activity artificial.

After the global stock market crash in 1987, investor interest in the Hungarian bond market sagged as inflation rose.(33) The Government eliminated its guarantee program and introduced personal income taxes. Investors scurried to rid themselves of their bonds in the face of rising inflation and rising deposit rates. As inflation crept higher, the Hungarian government began to tap the domestic market directly to finance its budget deficit, particularly by issuing treasury bills (T-bills). Until recently, T-bills were the only major type of security issued domestically.(34) As a major step toward creating a comprehensive securities market Hungary, forty-one members reestablished the Budapest Stock Exchange (BSE) on June 19, 1990.(35) The BSE was the first stock exchange to reopen in the region,(36) creating a market for Hungarian corporate equity. Despite minimal initial capital requirements volume requirements,(37) and increased trading of foreign securities on international exchanges, trading in equities on the BSE remained stagnant during the first year and a half of operation.(38) Initially overvalued stocks, insufficient share issuances, poor quality of investment options, high interest rates, the slow rate of privatization, and a general lack of investor interest attributed to this sluggishness.(39) In comparison, Hungarian bond markets experienced renewed activity, due in part to high interest rates.(40)

Securities markets have slowly begun to emerge slowly in other nations of the region. New stock exchanges have opened in Prague and

Bratislava.(41) In Czechoslovakia, the bond market received a boost from substantial premiums over the month-to-month inflation rates offered on commercial bank bonds.(42) Other interest-bearing investment vehicles such as T-bills and commercial paper also compete for Czech investments.(43) However, the breakup of Czechoslovakia initially delayed the progress of privatization, anticipated to be the primary source of shares for trading on the new exchanges.(44)

In Poland, the Warsaw Stock Exchange reopened on July 2, 1991. As in Hungary and Czechoslovakia, early investor interest concentrated more on bonds than on stocks because of extraordinary, high interest rates.(46) Smaller stock exchanges have also opened in Zagreb(47) and Kiev,(48) where bond and T-bill trading similarly established footholds faster than equity trading. Despite the apparent profit potential for those who invest in bonds and other debt securities, these benefits can be deceptive when offered in an environment with a high inflation rate. Moreover, higher interest rates tend to denote riskier investment. Obligors have greater difficulty meeting high interest rates with their available capital. Therefore, equity 's a viable alternative not only to investors, but also to issuers.

### III. The Elements of an Equity Market

#### A. Equity versus Debt (49)

Equity markets offer a number of advantages in generating capital when compared to debt or bond markets.(50) Like a consumer who uses credit cards too often, dependence on bond markets for financing can create long-term problems for the corporate or government borrower. As consumers charge more and more on a credit card, the outstanding balance grows larger, interest payments accrue, and the minimum monthly payment increases. Borrowers find they have increasing difficulty making their monthly payments, not to mention reducing the outstanding balance, unless their income increases proportionately. Interest payments consume an ever greater proportion of their income, diverting resources from more productive uses like expanding or modernizing a business. Eventually, borrowers must borrow simply to service their interest payment obligations. Ultimately, due to the increasing debt load, creditors will deny these borrowers further access to credit. In such circumstances, borrowers are commonly forced to declare bankruptcy.

A similar dilemma confronts corporations and governments that rely on bond issuances. Their situation becomes more acute when the interest rates payable on bonds are exceedingly high, perhaps reflecting high inflation rates.(51) A number of East European bond issuances encountered high inflation rates.(52)

Businesses have extreme difficulty generating sufficient revenue to pay both principal and interest while expanding and modernizing operations. The number of bankruptcies declared by U.S. companies that issued high-yield, junk bonds in the 1980s dramatically illustrates this point.(53) Despite respectable revenue levels, these U.S. firms were unable to service their **debt obligations**. Institutional underwriters denied them further access to the bond markets as issuers, effectively condemning them to bankruptcy court.

In light of the burdens associated with issuing bonds as debt instruments it follows that developing nations in Eastern Europe would focus their efforts on attracting equity investment capital by developing stock markets. Issuing shares in a company in exchange for investment capital does not require the extra financial burden of making interest payments. Such companies generally retain the discretion to pay dividends only when there is a profit. In return for the use of investment funds, the shares confer, by their number, a degree of control to the investor. Investors exercise that control through the power to vote on substantive, non-managerial matters relevant to the company's operations.(54) Debt financing will continue to provide an important source of capital finance in Eastern Europe, but a comprehensive capital market also requires strong stock markets.(55)

An equity market has two critical components: a supply of shares and a demand for shares. The monumental task of generating both components warrants a comprehensive strategy, particularly in developing nations. The decentralization of formerly planned Eastern European economies provides the unique opportunity to implement a strategy that can lead to fully functioning equity markets, given these nations' large domestic markets, vast supplies of natural resources, and skilled labor forces. Those equity markets, if successful, could generate investment capital to aid economic development and integration into the global economy.

#### B. Creating a Supply of Shares: The Role of Privatization

Privatization programs are the bedrock of stock market development in Eastern Europe. Essentially, privatization is the means by which the state divests itself of ownership in an enterprise or other forms of property.(56) The governments of Eastern Europe all envision selling shares in privatized companies to earn desperately needed investment capital. Viable stock markets will facilitate these sale transactions.(57) An efficient stock market can effectively value privatized companies and facilitate the transfer of companies into investors' hands.(58) On a macroeconomic scale, stock markets direct capital toward sectors of high return and increase efficiency by imposing financial discipline on companies.(59)

##### 1. The Basic Legal Framework For Privatization

Privatization plans employ a variety of methods to distribute existing state holdings. Large state enterprises may be converted into joint-stock companies whose shares can be sold to both domestic and foreign private investors, including the company employees. Alternatively, large state enterprises may be broken up and sold or leased as smaller units. Another means involves reprivatizing or returning land, structures, and companies to the original owners prior to collectivization or nationalization. Since a complete discussion of the privatization process exceeds the scope of this Article, discussion will be limited to the role privatization plays in developing equity markets.

Privatization contains two basic legal components: the law and the plan. The law consists of the legislation that articulates the organizational and legal principles for the transformation of state ownership to private ownership. The plan sets forth the specific means by which those principles are to be implemented. Typically, most legislative bodies in Eastern Europe have no problem agreeing on general principles and enacting privatization laws. Formulation of the specifics, however, often generates rigorous debate.

Even before it converted from a communist to democratic state, Hungary began privatizing state assets.(60) The Company Act,(61) which took effect in January 1989, was intended to ease the privatization of state-owned enterprises by laying out the various forms a privatized business enterprise may take. However, the act expressly excluded state enterprises from its provisions and thus failed to provide specific guidelines for the transfer of state-owned enterprises to the private sector.(62) It provided no legal rules to frame the transformation of a wholly state-owned enterprise into a private company.(63) This omission led to "wildcat" privatization, in which top management seized company assets and attempted to sell the assets to foreign investors, often at disproportionately low prices.(64)

The Transformation Act,(65) which came into force in July 1989, filled the void created by the Company Act by establishing a legal framework for the direct privatization of state-owned enterprises into companies.(66) The implementation of the Transformation Act and the establishment of the Hungarian State Property Agency (SPA)(67) in March 1990 were intended to nurture privatization. Nevertheless, the privatization of some 2000 Hungarian state-owned enterprises(68) proceeded at an excruciatingly slow rate.(69)

In response to the sluggish pace of early privatizations, the SPA announced the First Privatization Program in September 1990. The scheme

scheduled the sale of shares for twenty of the largest profitable state-owned companies, totaling one percent of total state property. In order to solicit offers, the SPA in some cases floated shares on the Budapest and foreign stock exchanges beginning at the end of 1991.(70) However, because of delays, the First Privatization Program has been characterized as a failure. Many Hungarian government bureaucrats purposefully created logjams in the process, fearing that rapid privatization would bring widespread unemployment and a drop in gross domestic product.(71)

Despite problems with the First Privatization Program, the government announced a second round of SPA-initiated privatizations, the Second Privatization Program, in December 1990. The Second Privatization Program targeted nearly 100 state-owned enterprises for privatization.(72) This time, the government more closely regulated the privatization process to prevent abuses, such as insider dealings and the gross undervaluation of company asset,(73) that arose under the First Privatization Program.(74) The government viewed legitimization of the privatization process as imperative since it allocated much of the revenue earned from both SPA-initiated and non-SPA-initiated privatization(75) to reduce the national debt.

The task of privatization in Czechoslovakia (now the Czech Republic and Slovakia) has proven even more daunting. The extent of collectivization and nationalization was greater in Czechoslovakia than in any other Eastern European country, with the exception of the Soviet Union.(76) Prior to its "velvet divorce" in January 1993, Czechoslovakia enacted two basic laws establishing the framework for Czechoslovak privatizations. One law pertained to the sale of smaller state-owned businesses.(77) The other law, which took effect April 1, 1991, introduced the use of investment coupons for the transformation of large businesses.(78) The government issued these investment coupons to all Czechoslovakian citizens over the age of eighteen, entitling the holders to purchase shares in certain Czech or Slovak enterprises.

Further, Czech and Slovak citizens can acquire ownership interests in state-owned enterprises through a scheme offering a choice between direct investments and investment funds loosely patterned after mutual funds. Since October 1, 1991, citizens have been entitled to buy books, each of which contains 1000 investment points for 1000 kroner (approximately thirty-three dollars at the average 1991-92 exchange rate). The points are used to bid for those **assets** earmarked for privatization. Upon **purchasing** the books, each citizen must decide whether to invest the points directly in a company or entrust them to one of more than four hundred investment funds.(79)

Although frequently delayed, many forms of privatization plans have been implemented in almost every Eastern European country.(80) At the end of 1992, Russia finally began implementing a voucher-based privatization plan modeled after the Czechoslovakian plan.(81) Beginning in October 1992, all 150 million Russian citizens received voucher coupons entitling them to own shares in enterprises slated for privatization. Each voucher represents 10,000 rubles of state property and can be sold, held, or invested in enterprises. Under the most widely used method of privatization for large enterprises, fifty-one percent of all shares are or served for sale to the employees of the privatized firm,(82) while the remaining forty-nine percent are available for public dissemination.(83)

## 2. Privatization Issues Impacting Stock Market Development

### a. Requiring Citizens to Pay for Shares

Privatization generally entails a two-step process. First, state enterprises are converted into joint stock companies. Second, the shares are sold or otherwise distributed.(84) Several problems have arisen in this process, slowing down the rate of privatization in most Eastern European nations.(85) Although privatization laws are in place, their implementation has been an enormous task, reducing the speed with which stock markets have developed in the region.(86)



The fundamental point of contention concerns the criteria by which shares in state enterprises should be distributed.(87) Two approaches toward privatization of state-owned industries have evolved. The first favors the free distribution of shares to all citizens. Free distribution of shares comports with fundamental socialist philosophy, which holds that all state assets and properties are essentially owned by all citizens. Accordingly, citizens should not have to pay for something that they already own.

The second approach permits the sale of shares, both to citizens and to foreigners. Economists who advocate the first approach downplay the impact of capital generated by the sale of shares on the national economy and the development of any stock market. They assert that the amount of revenue raised would be small because the value of the capital stock in privatized companies operating in the formerly centrally planned economies is insignificant.(88) To illustrate their point, these economists theorize that even if a national privatization program could generate as much as fourteen percent of national GDP in investment capital, a privatization program implemented over a ten-year period (the current projected time necessary to complete privatizations) would not likely generate annual revenues much larger than one percent of GDP.(89) While this may be true, money is money and any funds that might be generated - no matter how insignificant - could benefit the region.(90) Furthermore, from an economic standpoint, if shares in state enterprises were issued without payment, private wealth would theoretically increase, thereby fueling private consumption and destabilizing the macroeconomic environment.(91)

While Public interest in state-owned assets may be undeniable, the free distribution of shares would undermine the long-term objectives of privatization, including the dissolution of monopolies, the establishment of financial markets, the institution of convertible currencies and a sound banking system, and the creation of conditions favorable to foreign investment. Comprehensive economic development will require all of these ingredients.(92) Although the free distribution of shares might achieve some of these objectives, the inflow of capital from the sale of shares is necessary to meet all.(93) Without new capital, there is no catalyst for economic development.

#### b. Foreign Ownership

Assuming a choice to sell shares rather than distributing them freely, a second issue arises in determining who will be allowed to purchase the shares. Shall foreigners be allowed to buy shares in domestic enterprises?(94) Nationalistic sentiment cautions against foreign domination and intrusions on sovereignty. Although no Eastern European nation has raised a strong clamor against the foreign acquisition of shares with the possible exception of Poland),(95) the economic desirability of allowing foreign investors to purchase shares must be balanced with popular sentiment.

Limiting ownership to domestic investors is financially unsound, especially in places such as Czechoslovakia, where privatized assets totalling \$ 100 billion greatly eclipse individual savings, which amount to only a few billion dollars.(96) Since domestic institutions cannot by themselves mobilize the necessary capital, foreign investment must satisfy any shortfall. Moreover, the non-capital foreign contributions that typically accompany capital investments, such as banking expertise, training, and technology, can also strengthen the region. Past experience in the Philippines and Indonesia, for example, has demonstrated that foreign equity led to the importation not only of capital, but skilled management as well.(97) These additional benefits have, in turn, tempered local consternation over foreign equity investment in those nations.

Many East European governments have attempted to assuage anxiety over foreign control by mandating government approval and quantitative limitations on the ownership of stock.(98) Although percentage ceilings may ensure domestic control of company management, quantitative limits generally are problematic. Ownership ceilings dissuade foreign investors

from investing in jurisdictions hostile to foreign control. Furthermore, market activity after the primary offering renders foreign stakes difficult to monitor. Thus, it is unsurprising that Hungary, Poland, the Czech Republic, and Slovakia have largely removed percentage limits on foreign ownership.(99) Notwithstanding the explicit removal of quantitative limits, other conditions on foreign ownership in privatized companies remain somewhat ambiguous. Both privatization and foreign investment legislation often contain inconsistent provisions pertaining to foreign ownership.(100)

#### c. Mandatory Public Offerings

In addition to deciding whether to offer privatization shares to foreigners, the nascent market economies of Eastern Europe must also determine whether to force companies to go public, to sell shares in public offerings at stock exchanges. Opponents argue that conditions placed on publicly held companies, such as mandatory disclosure requirements and accounting standards, as well as the dilution of voting control, will constrain fledgling East European companies seeking to compete in the global economy. Those who promote public offerings counter that capital is needed for such competition and that the benefits achieved by, capital generation outweigh the bureaucratic costs of being a publicly held firm.

Korea offers a textbook illustration. The Korean government has ordered a number of companies operating in Korea to sell their shares publicly and has actively attempted to identify privately held companies that meet certain criteria as candidates for public offerings.(101) Companies that ignore government recommendations to sell their shares publicly face indirect sanctions including harsh tax treatment,(102) whereas companies that do offer their shares publicly receive tax breaks.(103) The Korean government encourages financial institutions to underwrite offerings by providing them with low interest loans. To alleviate concern over the dilution of domestic control, Korea has increased ceilings on non-voting shares.(104) As a result of these measures, Korea has one of the most robust, newly developed stock markets in the world.(105)

Nevertheless, some view such policies as unreasonably heavy-handed and damaging to a nation's image as a hospitable place to operate a company. Instead, they argue that governments should cajole companies by offering incentives and creating conditions to encourage public offerings. A government can provide tax incentives for public offerings as one obvious inducement. In drafting disclosure rules for publicly held companies, governments should account for secrecy interests in certain areas of operations to avoid overly intrusive disclosure obligations. Company decisionmakers must appreciate the advantages of using capital generated from public offerings to diversify and expand operations. Small private companies also should be encouraged to merge with each other to effect a more efficient allocation of resources and provide the market with more attractive vehicles for investment capital. For example, Taiwan's liberal merger and takeover laws have generated larger companies that have, by virtue of their size, caught the attention of many foreign Investors.(106)

#### d. Asset Valuation

Share pricing and asset valuation raises perhaps one of the most frustrating problems related to the development of equity markets through Eastern European privatization. Although most economists maintain that shares should be offered at a price that fairly reflects the current market value of the underlying asset, shares offered in Eastern European privatized companies typically have been either grossly over-valued or undervalued.(107) However, the problem of misvaluation is understandable in light of the historically atrocious bookkeeping methods employed by companies in the former centrally planned economies. Former practices make net worth determinations nearly impossible because companies never had to account for fair market value or depreciation, particularly in accordance with Western standards. Similarly, liability valuations are uncertain because Communist systems often ignored or arbitrarily accounted for financial obligations to other parties.

The absence of efficient free markets similarly undermines the pricing process. Further., government officials responsible for setting initial share offering prices may fear either that initially underpriced shares would be interpreted as a sign of financial weakness that might scare away potential investors, or that overpriced shares will undercut profit potential, thereby dissuading future investments. Experience painfully demonstrates the need for professional auditing and underwriting services to assist in both ascertaining accurate valuations and determining pro formas of future net earnings.(108)

Market forces must be allowed to set fair prices without market distortions. Limits should be placed on initial subscriptions of shares to prevent price overshooting and stem speculation. The privatization and public offering of Ibusz, the Hungarian travel agency, illustrates the oversubscription problem. The Ibusz issue was twenty-three times oversubscribed.(109) Consequently, initial share prices increased drastically, generating inordinate profits for investors. Shortly thereafter, prices fell back just as dramatically as investors claimed their profits. The extraordinarily high share prices did not represent true market value, but rather an ability to exploit profits. Although this phenomenon also exists in Western markets, the effects of the price distortions are magnified in less developed equity markets. Thus, share valuation poses a dilemma: efficient markets ensure accurate share valuation, Yet accurate share valuations are necessary to efficient markets.(110)

Privatization programs must address the development of financial markets, because privatized companies offer the primary source of shares for such markets. In particular, public offerings of privatized companies offer the best means for facilitating broad-based ownership and liquidity. Regretfully, the slow pace of privatization and the embryonic size of the new stock exchanges constrain the number of new issues. For example, in Hungary, where the pace of privatization has been disappointing, shares of privatized companies constitute only twenty percent of trading on the Budapest Stock Exchange, which is by no means substantial.(111)

#### B. Creating a Supply of Shares: Attracting Foreign Issuers

Active trading in the stock market is necessary to guarantee efficient response to market forces. Since prudent investment strategy favors a diversified portfolio, numerous and varied choices of company stocks to buy or sell make active trading more likely to occur. Furthermore, trading volume heavily influences a market's liquidity and thus is important to its overall efficiency. Even if a substantial number of privatized companies offer and list their shares on Eastern European stock exchanges, those countries should solicit foreign companies to ensure the availability of diverse investment options and draw more investors to trade on those exchanges.(112)

Even without government incentives, a foreign firm may perceive some benefits in offering and listing shares in overseas markets, particularly those in which it does substantial business.(113) A foreign listing may enable a company to make acquisitions or participate in a merger in that jurisdiction. Some countries only permit locally listed firms to make tender offers. A foreign listing may enable a company to avoid a decline in its stock prices resulting from a saturation of subscriptions in its home market. Offering shares on a foreign stock exchange generates foreign currency to finance foreign expansion, satisfy operating requirements, or meet long-term **debt obligations** in that jurisdiction. The foreign listing also facilitates direct access to institutional and individual investors, allowing companies to reduce transaction costs by eliminating duplicative and expensive registrations.(114)

A foreign listing also serves a marketing purpose. For exporters, a listing on the local exchange can introduce the company's products into Eastern Europe.(115) A local listing can score a public relations coup with local bureaucrats, who welcome any effort to contribute to domestic economic development. Company stock can be offered as compensation to boost

employee motivation. Finally, companies dependent on trade secrets and confidential technical data can use a foreign listing as an alternative to a joint venture. The equity offering provides a means to meet and local ownership requirements without relinquishing control of technology,.

The governments of the Eastern European nations and the former Soviet republics should attempt to attract foreign listings on local exchanges through a variety of such policies. For instance, they should reduce the time and expense needed to comply with registration requirements. Reciprocal disclosure and financial reporting requirements could be adopted to make a prospectus satisfactory to regulatory authorities uniformly, throughout Eastern Europe, (116) thereby limiting legal and accounting costs by eliminating duplicative registration processes. Governments must balance the public need for regulation against the business need for liberalization and flexibility. Achievement of such a balance will render issuers more likely to offer investment vehicles in Eastern Europe. (117)

#### C. Creating Demand: Attracting Investors

A stock market cannot exist without the investors that provide the capital to initiate trading activity. The expectation of profit motivates investors to contribute money to a particular business. An assessment of the company's historical performance and its ability to perform in the future determines whether it will generate a profitable return to its investors. Despite a number of other issues that bear upon investment risk, perceptions of the stability and risks inherent to Eastern Europe will dominate investor decisions to participate in that market.

##### 1. Domestic Investors

A nation's citizenry provides its most accessible pool of potential investors. The various privatization schemes underway in Eastern Europe all envision broad investment participation by the indigenous population. (118) However, the task of instilling domestic confidence in stock markets presents a particular challenge in Eastern Europe and the former Soviet Union. In the former Soviet republics, for example, recent surveys indicate that most people do not have confidence in the concept of a free-market economy. (119) Although market economics has more than a two-to-one ratio of support in Eastern Europe, (120) past flirtations with stock markets fomented deep suspicions. In particular, the fraud and bribery scandals that plagued the region's stock exchanges prior to World War II (121) left a negative impression. Thus, stock market advocates in Eastern Europe must transcend prevailing skepticism to build confidence in the system and encourage local investment.

Some newly created stock markets have not made a substantive contribution to national economic development, owing largely to a lack of investor confidence. (122) Specifically, systemic deficiencies such as poor information, insider trading, and market imperfections preventing the allocation of capital to the most efficient companies have undercut investor confidence. (123) Nevertheless, a soundly structured privatization process can overcome these obstacles and make equity investment attractive.

The success of a newly created stock market depends on the ability of its backers to mobilize domestic savings and stimulate domestic demand for equity investments. (124) Though high interest rates on deposits tend to immobilize savings in deposit accounts, high rates also discourage increased consumption and accumulation of physical assets. Thus, a balance must be struck in establishing macroeconomic policy that encourages sufficient savings for investment without diverting too much of capital resources away from domestic consumption.

Even though institutional investors provide the vast proportion of funds in a functioning stock market, newly created markets should solicit individual domestic investors. The involvement of citizens in stock markets makes political sense as well. Thus, opportunities that facilitate equity investment should be made available to the general public, and small stock quantities should be made available, rather than large minimum amounts that only large institutional investors or wealthy individuals can afford. (125) Other incentives might be afforded to citizens to purchase stock, such as

tax preferences and accessible loans.(126) Companies also can stimulate equity participation by offering a large proportion of their equity base to individuals. Such schemes, however, must be well planned and should not deviate from sound business practices. Hungary, for instance, broke generally accepted rules and created a textbook example of conflict of interest when it allowed newly established commercial banks to advise their customers to buy shares they had just issued.(127) The banks compounded their indiscretion by providing loans to their shareholders without reference to the standard criteria for creditworthiness.(128)

Eastern European citizens must be educated to behave like experienced shareholders, a considerable feat in nations where most people have never been exposed to stock markets. They must be taught to evaluate financial information, such as prospect uses, so that they can participate in the market. Furthermore, the region's deep-rooted bias against long-term investment must be overcome. Nations that allow citizens to convert privatization vouchers into cash should offer tax incentives to buy equity, thereby deterring people from taking the cash and depositing it in banks. Equity is difficult to sell, however, unless the dividend rate exceeds the rates on time deposits and savings accounts. Education may dispel the prejudice against long-term investments by teaching citizens to understand capital appreciation.

Various privatization plans implemented in Eastern Europe afford workers substantial equity holdings in privatized companies.(129) In specific instances, privatization plans have guaranteed workers a minimum percentage of equity ownership in their companies.(130) In contrast, the Czech government opted against entitling workers to obtain shares at a discount. Instead, unclaimed small enterprises are sold to the highest bidder.(131) The Polish privatization laws not only offer workers a fifty percent discount on the price of the issue, but reserve up to twenty percent of the shares of each enterprise for workers.(132) By ensuring employees have a vested interest in their companies by virtue of their ownership of shares, governments of the region can increase labor productivity while aiding the development of the stock markets.

## 2. Foreign Investors

Foreign investors constitute an important potential source of demand for shares in Eastern European companies. Because domestic savings alone will be insufficient to adequately capitalize the region's stock markets, foreign investment is necessary to fill the gap and ensure competitive stock markets.(133) Experiences in countries such as Korea demonstrate that foreign capital can contribute significantly toward attaining capitalization goals.(134) However, only foreign institutional investors, not foreign private individuals, will have the financial sophistication and resources necessary to deal with risks posed by regional stock markets.

Foreign investors' participation in an overseas market is a function of their confidence in the overseas economy. Since political stability is an influential factor, regional governments may effectively generate foreign investment interest by shifting focus from their current shaky economic situations(135) to the potential economic gains that investment in the region could garner. In the last two years, foreign investors apparently have recognized this potential, particularly in those nations that have faithfully serviced their foreign **debt obligations**.(136)

## IV. Establishing the Legal Infrastructure

An established legal infrastructure is fundamentally important to a stock market, from the perspectives both of issuers and investors. Laws must clearly specify issuers and investors' rights and obligations. The absence of a coherent body of written laws has been the major impediment to investment in Russia. New federal laws and decrees are passed nearly every day.(137) If published, they may appear in a wide variety of official and unofficial publications, most of which have not been translated from Russian to any other language.(138) However, no master list of new acts exists, which makes tracking the new laws virtually impossible.

Furthermore, many of the new laws conflict with each other. No preemption rules have been created to resolve such conflicts.(139)

Even if coherent, well drafted laws exist, they must be implemented and enforced. Financial sustainability is not compatible with the arbitrary application of law. Moreover, an effective and proactive enforcement mechanism can legitimize the law. The following sections will outline the major issues connected with formulating the legislative framework for stock markets in Eastern Europe and the former Soviet Union.

#### A. Using Other Nations As Models

When formulating the legal framework for stock market regulation in Eastern Europe, it is important to remember that that countries of the region have individual characteristics and needs. Although this Article has generally focused discussion on the region as a whole, it is becoming increasingly difficult to make such broad generalizations.

A cursory review of Eastern Europe illustrates such disparities. Hungary possessing only ten percent of Eastern Europe's population, has until recently received the lion's share of the private capital funneled into the region, totaling more than \$1.4 billion in 1991. This exceeds combined foreign investment in all the other countries of the region.(140) Poland has far greater **debt obligations** than any of its neighbors.(141) Czechoslovakia has divided into two separate sovereign nations. Yugoslavia, once showing an economy with great potential, has been ravaged by war. Romania is still grappling with its political transformation. In general, the northern tier of the region, Poland, the Czech Republic, and Hungary, has far brighter prospects than the southern tier, including Romania, Bulgaria, Slovakia, and Albania, where political and economic reforms have barely begun.

Nevertheless, the disparities among the Eastern European nations are insignificant when the region is compared with the United States, Western Europe, and other industrialized nations. In the United States and Western Europe, the Industrial Revolution contributed to the evolution of the stock markets. The need for capital during this period fueled stock market activity. In contrast, the Eastern European markets have emerged in response to political policy, rather than private economic demand. This reality makes it impractical to transplant the Western legal framework for stock markets in toto into Eastern Europe. The capital markets, levels of overall economic development rates of savings, and other economic and cultural influences differ too greatly.(142)

Further, years of central planning have created deep-rooted habits.(143) Accordingly, stock markets should be structured to account for the idiosyncracies and social attitudes of the particular market.

#### B. Disclosure Requirements: Securities Laws

Privatization, foreign investment, company, and securities laws form the core legal infrastructure of stock markets in Eastern Europe.(144) Privatization laws aid the initial establishment of a stock market system by facilitating a supply of tradeable shares. Foreign investment laws set the rules by which both foreign investors and issuers participate in the domestic markets. Company laws lay the groundwork for privatization by establishing the legal organizational forms through which privatized enterprises must do business.(145) Finally, securities laws set forth the rules by which shares are issued and traded. Typical securities legislation includes disclosure requirements, capitalization requirements, and rules governing insider trading, anti-manipulation, takeovers, tender offers, and the licensing of broker-dealers.

The rules that govern company-shareholder communications comprise the bedrock of securities legislation. The laws in most jurisdictions recognize the right of potential investors to have access to certain information about the target company. Similarly, current shareholders, who require information necessary to evaluate value and growth prospects, commonly have access to basic information. The free flow of information is vital to a market-driven stock market.

If left to the discretion of corporate management, most companies

would give out as little information as possible to their shareholders. First, the collection and dissemination of information tends to be labor-intensive and expensive, particularly in developing nations that lack sophisticated and reliable postal and communications systems. Second, management naturally refrains from disclosing information adverse to its position, including reports on financially unprofitable operations and executive compensation amounts. Consequently, only regulation can guarantee disclosure of necessary investment information to prospective and current shareholders.

Nevertheless, disclosure requirements should not impose such burdensome collection and dissemination costs that they effectively preclude companies from offering stock in a particular market. A delicate balance must be achieved so that shareholders receive complete and reliable information. International custom specifies standard information to be disclosed to investors. The individual nations should incorporate these items into their respective securities laws, both to ensure informed investments and to enable the region's future integration into the global securities market. Thus, they should provide access to balance sheets, statements of financial operations (profit and expense reports), management discussion and analysis of operations, pro forma financial statements, identification of members of the board of directors and key management personnel, discussion of known or potential risks to a company's operations, and a description of business.(146)

Other items, such as executive compensation, lack a complete international disclosure consensus.(147) Obviously, a company that takes great pains to maintain secrecy will not subject itself to strict disclosure requirements and will consequently refrain from engaging in a public offering. Nonetheless, the developing stock markets of Eastern Europe have implemented prospectus requirements with varying disclosure standards.(148)

While it may be impossible to transplant Western standards directly to the nations of Eastern Europe, disclosure standards should be harmonized to the greatest extent practicable. Common accounting standards, in particular, are crucial to a successfully operating market. The methods employed to calculate net profits, assets and liabilities should conform to Western auditing and accounting procedures, the generally accepted accounting principles (GAAP) of the United States,(149) commonly utilized by foreign issuers and investors. Any cost of reconciling regional auditing and accounting standards with Western procedures will diminish foreign participation in the stock markets. To the extent the credibility of Eastern European financial statements would be undermined, the disparity could discourage both foreign and domestic investment alike.

Regional stock markets also must ensure the reliability of disclosed information. The timeliness of disclosure is particularly relevant. Investors, particularly Western institutional investors accustomed to instantaneous dissemination of information, should have access to the most recent financial information, because even a one-month delay can preclude a well-informed investment decision. Unfortunately, Eastern European nations do not yet have sufficient technology to disseminate current information in a timely manner.

Educating domestic investors to understand disclosed information raises another dilemma. Disclosure has value only if the information affects investment decisions. The most obvious means to achieve a financially sophisticated public is to provide more business classes, not only as a part of normal schooling, but also as continuing education to those who have completed their schooling. Credit agencies such as Moody's and Standard and Poor's should be established and promoted to assist the evaluation of investment opportunities. These credit agencies would have the professional ability to assess and rate a company offering its shares to the public.

#### C. Clearance and Settlement

Clearance and settlement logistics presents one of the most

important, albeit excruciatingly boring, areas that regulation must address to ensure an efficient stock market. Clearance and settlement refers to the process of confirming and paying stock transactions. The process involves determining what the counterparts owe, what they are due to receive, and on what date they will receive it. Absent an efficient clearing and settlement system, parties to a stock transaction incur the risk of either not receiving payment or not receiving the stock purchased. These risks increase as the volume of trade grows.(150) Prudent drafting of the legal infrastructure for stock markets in the formerly centrally planned economies should therefore lay out a comprehensive clearance and settlement mechanism to ameliorate such risks. To date, however, no substantive written rules exist.

International studies indicate that risks attributable to clearance and settlement can be contained by shortening the time between the trade date and payment date, promoting trade guarantees, and assuring the simultaneous exchange of payment and securities.(151) These goals require technologically advanced automated system. In major markets, market participants formulate the rules for clearance and settlement, such as the number of days in which a trade should be settled.(152) In turn, the number of days by which this time period can be shortened invariably depends upon the degree of automation available. Unfortunately, automation is expensive. Nevertheless, the costs in implementing an efficient system will be recouped if the automation attracts investors and issuers to participate in the stock markets. As a major facet of its clearance and settlement system, each nation should establish an effective central securities depository employing a book entry system. In this way, trades may be facilitated by using simple debits and credits on the books of the central securities depository.

The ownership and management structure of a central securities depository ultimately is determined by its legal structure and the regulatory environment. A depository may take the form of a government agency, a private company, or a subsidiary of a company or entity. The identity of the governmental agency that will regulate the central securities depository depends upon who owns the depository. For example, if the depository is a subsidiary of a banking and fiduciary entity, the government agency that regulates banks naturally would oversee its operations. Ideally, the regulatory system should enable all segments of the securities industry, both governmental and non-governmental, to own or at least participate in the central securities depository in order to have the protection of a checks and balances system.(153)

While clearance and settlement systems remain in embryonic and disorganized forms throughout most of Eastern Europe and the former

Soviet republics,(154) Hungary offers a prototype to which its neighbors should aspire. The Budapest Stock Exchange began operating a central depository in 1992 and clears all transactions by means of the central bank, the National Bank of Hungary.(155) Every transaction is settled on the fifth day after the transaction, and a clearing fund is used to minimize the risks of losses attributable to failure to match trades. The BSE is studying further development of its settlement system including increased computerization, modernization of the legal framework, dematerialization of securities,(157) and improved cross-border settlements.(58)

#### D. Enforcement

The credibility and efficacy of any regulating regime depends upon whether laws are adequately enforced. Without an appropriate enforcement mechanism to detect and deal with violations of the rules laid out by stock market regulations, investors and issuers will not participate in the system. Arbitrary or half-hearted enforcement of laws will cause regional stock markets to fail, which in turn will substantially undermine efforts to stimulate Eastern European economies.

The creation of a special governmental body vested with powers to enforce stock market laws is the best means for ensuring compliance. In



most industrialized nations with active stock markets, quasi-independent governmental agencies serve as effective monitors. The U.S. Securities and Exchange Commission, for example, has diligently administered and enforced the securities laws of the United States, thereby contributing to the most active securities market in the world.(159)

The tendency of regulatory agencies to act both as regulators and promoters of the national stock market is a major problem in developing nations.(160) Such a blatant conflict saps confidence from the system. Nevertheless, a developing nation must make concerted efforts to promote its stock market. The Korean stock market should be a model to the Eastern European nations and former Soviet republics. Korea has separated regulatory and promotional functions, delegating their functions between two agencies. The Korean Securities and Exchange Commission oversees stock issuances and fair trading, while the Korean Supervisory Board deals solely with promoting new offerings.(161)

Given its progressiveness in other areas of stock market development, it is not surprising that Hungary has dealt with regulatory oversight in much the same way as more sophisticated, industrialized nations. Hungarian securities legislation created the State Securities Supervision and delegated regulatory oversight responsibilities to it, including ensuring the adequacy of prospectus disclosure, issuing permits for public offerings, licensing stock traders, and supervising overall market activity on a continuous basis.(162) The Budapest Stock Exchange, like other international stock exchanges, is a self-regulating organization over which the State Supervisory Board exerts lesser influence.(163)

In contrast, the Ministry of Finance, through an appointed commissioner rather than a specially formed entity, oversees Czechoslovakia's stock market activities.(164) Russia has no oversight commission; however, President Yeltsin has recently appointed an official to establish a commission to police the nearly one hundred stock exchanges operating in Russia.(165)

#### E. Capital Flight

Capital flight poses a major problem to nascent Eastern European stock markets. Flight occurs when foreign or domestic investors export any profits they receive from the stock market out of the nation instead of reinvesting those dividends back into the stock market or some other domestic investment vehicle.(166) The decision to repatriate profits and sometimes even original investment capital may be in response to a number of factors. These factors may include domestic financial or political crises, high taxes, prospective tightening of capital controls, domestic currency devaluation or volatility,(167) actual or incipient hyper-inflation, foreign speculation opportunities,(168) or a combination of these factors.(169) Capital flight is considered a prime factor contributing to the foreign debt problems of developing nations.(170)

If unchecked, capital flight can damage a country's economy. The outflow of money from a nation depletes foreign exchange reserves, which in turn depreciates the domestic currency's exchange rate and destabilizes interest rates.(171) This situation creates inflationary pressures and undermines the government's ability to maintain monetary control, particularly in countries with less developed financial systems.(172) Capital flight also undermines public confidence in the currency, contributing to speculative capital movements. Furthermore, capital flight disrupts a country's balance of payments by contributing to a current account deficit, thereby making it more vulnerable to external economic forces.(173)

Capital flight more acutely affects developing nations by contributing to the erosion of the domestic tax base. Developing nations are particularly vulnerable because they lack developed financial markets in which they can issue government securities (such as treasury bills) to finance fiscal deficits, thereby making them more dependent than industrialized developed nations on tax revenue.(174) Capital flight essentially depletes a nation's capital resources, leaving less money to

invest in the domestic economy.(175) Developing nations routinely impose capital controls to curb problems created by capital flight. In the 1970s and 1980s, countries Argentina and Korea vigorously enforced restrictions on capital exports and actually succeeded in controlling capital flight.(176) Typical means by which developing nations control capital flight include restrictions on foreign currency exchange transactions, requirement of government approval for any domestic capital exports, and outright prohibitions of all exports of profits.(177) Less direct methods include the imposition of fees or taxes large enough to make any transborder remittance prohibitive.(178)

Under some circumstances, the international community condones capital flight controls. The International Monetary Fund, for example, has recognized the need of some developing nations to impose controls on capital outflows for the purpose of correcting balance of payments deficits.(179) Despite occasional international approval of the use of capital controls, the capital flight dilemma places developing nations, including those in Eastern Europe, in an unenviable position. They must attempt to strike a balance between stemming capital flight and encouraging investment. Restricting investors' ability to repatriate their profits understandably dissuades foreigners from investing in a national market. Moreover, a country that implements capital controls saddles itself with monitoring expenses and exposes itself to possible retaliation from other countries. Furthermore, capital controls distort domestic currency exchange rates.(180)

Liberalized capital movement policies can actually ameliorate capital flight and serve to attract foreign investment capital. In this vein, international organizations, most notably the World Bank, have issued model guidelines as to how nations should address capital movements.(181) These guidelines call upon nations to allow the full repatriation of original investment capital and profits.(182) Although actions such as amnesties(183) and the issuance of foreign currency denominated or securities in abating capital flight, unrestricted instruments (184) or securities (185) aids in abating capital flight, unrestricted capital movement best serves sustained stock development. Secure in their ability to repatriate profits at will, foreign investors will more readily participate in an overseas economy with liberalized capital movement policies. Similarly, reassured that they can transplant their assets as economic circumstances warrant, citizens will have more likely invest in domestic, rather than foreign, stock markets.

Recognizing the benefits afforded by maintaining liberal capital movement policies, Eastern European nations generally allow unrestricted capital exports. In Hungary, Poland, and Czechoslovakia, foreigners may repatriate their profits and liquidated investments.(186) Recent U.S. bilateral treaties with these nations reaffirm and, in some cases, expand the right of repatriation.(187) Similarly important are assurances that, in the event a government believes it must expropriate an investment, it will make prompt and adequate compensation in an amount equal to the market value of the investment at the time of expropriation.(188)

#### V. Conclusion

Whether Eastern European stock markets will be successful in generating the capital resources necessary to enable the region to compete within the global economy hinges ultimately upon the underlying economic and political stability of each nation. The current fluid economic and political climate makes it impossible to predict the role that stock markets will play.

From an economic standpoint, the privatization process is crucial to the development of stock markets in each nation. The slow pace of privatization in most nations has undermined stock market growth insofar as each stock market is dependent upon privatized companies as a source of shares.(189) Without shares, there can be no investors. Further, investors will not participate in economies teetering due to uncontrolled inflation and difficulty in meeting external **debt obligations**.

The future is difficult to predict. Just last year, Poland was struggling to make its foreign debt payments while Hungary was viewed as a role model among debtor nations for faithfully making its debt payments. Now Poland has stabilized its debt burden, while Hungary's per-capita foreign debt has become the highest in Eastern Europe, creating increasing concern among its creditors.(190)

Equally uncertain is the political stability of the region. Eastern Europe has a tradition of volatile politics, which has been reinforced by the recent collapse of the Polish government in May 1993.(191) The drive by most of the Eastern European nations to become full fledged members of the European Union (the Union)(192) has tinged relationships with nations outside the Union, making potential investors from those nations apprehensive.(193)

Investment experts have suggested a number of creative ideas to bolster investment in Eastern European stock markets and enable them to more effectively compete with other stock markets. Linking the regional stock exchanges has the potential to create a single, more diversified, and consequently more attractive market.(194) However, efforts to link the exchanges would require substantial cooperation and coordination of economic policies among the nations, an unlikely if not impossible feat. Selling shares through investment funds that specialize in Eastern European stocks presents a more cogent means to market regional stocks internationally and domestically. A number of large investment companies offer the opportunity to invest in funds holding shares in a variety of Eastern European companies, thereby providing diversification and reduced risk.(195)

The development of stock markets in Eastern Europe involves endless variables, and the task of establishing the legal infrastructure for a sustainable and viable market is daunting. The nations of the region must confront complex issues. Yet with persistence, fortitude, Western experience, and simple trial and error, the stock exchanges in Budapest, Warsaw, Prague, Bratislava, and other cities in the formerly centrally planned economies can some day rival their Western counterparts and generate the capital necessary to fully integrate Eastern Europe into the global economy. (\*) LL.M. candidate, University of Washington School of Law; former attorney, U.S. Securities and Exchange Commission, Washington, D.C.; J. D., University of Georgia; B. A., University of Virginia. (1.) See, e.g., Bernard Gwertzman & Michael T. Kaufman, *The Decline and Fall of the Soviet Empire* xvii (1992) (describing the splintering of the Soviet bloc); *The Breakup of Communism: the Soviet Union and Eastern Europe* (Matthew A. Kraljic ed., 1993) (discussing the disintegration of the Soviet Union due in part to the rejection of communist ideology). (2.) See generally David M. Kemme, *Transitions in Europe and the Soviet Union: Issues and Strategies* (1991) (arguing that the postcommunist transition period of the former Soviet empire will be lengthy and arduous, outlasting Germany and Japan's democratic reconstruction period). (3.) Specifically, some economists assert that the allocation, maintenance, and formation of capital represents the paramount issue in changing from a centrally planned to a market economy. See, e.g., Jozef M. van Brabant, *Property Rights Reform, Macroeconomic Performance and Welfare*, in *Transformation of Planned Economies: Property Rights, Reform, and Macroeconomic Stability* 30 (Hans Bloomestein & Michel Marrese eds., 1991) [hereinafter *Transformation of Planned Economies*]. (4.) For an analysis of the negative consequences emanating from foreign aid, see Kevin Dahaner et al., *Help or Hindrance?: United States Economic Aid In Central America* 1-4 (1987); Roger C. Riddell, *Foreign Aid Reconsidered*: Johns Hopkins Studies in Development 85-127 (1987). (5.) Fortunately, however, the debt burden has been eased in recent years among the fifteen most heavily indebted developing countries. In 1990, claims on these nations fell by \$28 billion, due in part to debt conversion and restructuring programs such as the program in Yugoslavia. See International Monetary Fund, *Private Market Financing for Developing Countries* 4 (1991) [hereinafter *Private Market Financing*]. (6.) Equity

refers to a stockholder's proportionate share, or ownership interest in a corporation whereas equity financing entails the raising of capital by a corporation by issuing, or selling, stock. Black's Law Dictionary 540-41 (6th ed. 1990). This activity contrasts with debt financing, raising capital by issuing bonds or borrowing money. Id.; see also *infra* at subpart III(A). (7.) See Robert B. Dickie & Thomas A. Layman, Foreign Investment and Government Policy in the Third World 167 (1988). (8.) For example, Korea issued guidelines in 1986 that severely curtailed the range of corporate activities eligible for foreign currency loans from offshore sources partly for currency exchange control reasons, but also to stimulate its equity markets. See Kye Sung Chung, The Internationalization of the Korean Securities Markets: Legal and Economic Perspectives, 27 Colum. J. Transnat'l L. 27, 38 (1988). (9.) See Marvin R. Jackson, Company Management and Capital Market Development in Transition, in Creating Capital Markets in Eastern Europe 71 (John R. Lampe ed., 1992). Germany, where banks actively involve themselves in company management, investment banking, and brokerage services, represents the most conspicuous example. Id. (10.) But see Lawrence J. Brainard, Strategies for Economic Transformation in Central and Eastern Europe: Role of Financial Market Reform, in Transformation of Planned Economies, *supra* note 3, at 95-96 (taking the position that the banking system will be the most important institutional element of the capital market in the near future). (11.) The term **security** generally includes any note, stock, treasury stock, bond, debenture, evidence of indebtedness, or certificate of **interest** or participation in any profit-sharing agreement, collateral-trust certificate, preorganization certificate of subscription, transferable share, investment contract, undivided interest in oil, gas or other mineral rights, or any put, call, straddle, or index of securities. 15 U.S.C. § 77 (b)(1) (1988). (12.) See generally International Monetary Fund, International Capital Markets: Developments, Prospects and Policy Issues (1992) [hereinafter International Capital Markets] (discussing shift from banking systems to securitized money and capital markets). More creditworthy corporate borrowers in major industrial countries are increasingly able to meet their liquidity, risk management, and financing needs directly in liquid securities markets. Commercial paper and repurchase agreements have become the most popular short-term financing instruments. Id. at 2. Money market mutual funds are siphoning deposits out of the banking system, thereby displacing the role of banks. Id. In 1985, international bank lending decreased to \$21.6 billion while international bond and note issues (non-equity) stood at \$162.8 billion. Bank for International Settlements, Recent Innovations in International Banking 130 (1986). (13.) A primary market hosts initial sale of new securities by their issuer, in contrast with a secondary market, which only trades previously issued securities. See Black's Law Dictionary 1191 (6th ed. 1990). (14.) Czechoslovakia officially divided into two separate sovereign nations, the Czech Republic and Slovakia, on January 1, 1993. For the purposes of this paper, "Czechoslovakia" shall collectively refer to the two nations, each of which has predominantly retained the federal legislation enacted prior to separation. Most legislation previously in force has been, or is in the process of being, adopted into national laws by transformation acts. See World Accounting Report, Mar. 1993, available in LEXIS, Nexis Library, NEWS File. (15.) Total debts owed by the Central and Eastern European countries equaled \$195 billion at the end of 1992, \$13 billion higher than outstanding debt at the end of 1991, See Growing Exports and Reductions Improve Polish Debt. PAP, Mar. 11, 1993, available in LEXIS, Nexis Library, WIRES File. Poland struggled to service its \$45 billion foreign debt in 1992, but appears to have regained control in 1993. Id. Hungary had a gross foreign debt at the end of July 1992 of \$22.8 billion. L. Perrin, Hungary: Recovering Economies, Through the Pain Barrier, Euromoney, Jan. 19, 1993, at 89. In 1993 Hungary's foreign debt became the highest per capita in Central and Eastern Europe, causing some creditors to worry about its future ability to meet its obligations. See Competition for Capital Likely to Intensify,

Euromoney, Mar. 16, 1993, at supp. Hungary's estimated budget for 1994 anticipates a record deficit of \$3.3 billion, which will constitute approximately 8.4% of its gross domestic product. See Kardy Okolicsanyi, Hungary's Budget Deficit Worsens, RFE/RL Res. Rep., Jan. 14, 1994, at 36. Czechoslovakia had a gross foreign debt in September 1991 of \$9.3 billion. See The Guide to World Equity Markets 611 (Stuart Allen & Selina O'Connor eds., 1992). (16.) Although often referred to as "developing" nations themselves, the countries of Eastern Europe and the former Soviet republics are now called "Economies in Transition" (EIT) as they are in the process of making the transition from a centrally planned system to a free market economy. See Vinod Rege, Economies in Transition and Developing Countries, J. World Trade 83 (Feb. 1993). Despite their special classification, EIT's are increasingly treated on the same footing as developing nations by the international financial community, based strictly on economic criteria. Id. at 85. (17.) Hungary, the Czech Republic, Slovakia, and Poland were "the only countries in the region which have managed to stabilize or cut their debts at the end of 1992." Growing Exports and Reductions Improve Polish Debt, supra note 15. Poland has had problems servicing its foreign debt; in September 1991, the economic situation looked bleak when Poland's ability to pay off its foreign debt of \$30 billion was in doubt. See Poland, Don't Panic Economist, Sept. 7, 1991, at 52, 52. Because of recent disastrous economic policies, Slovakia nearly cannot service its 1993 foreign debt. See Czechs and Slovaks, Not So Amicable, Economist, Apr. 17, 1993, at 50, 50. (18.) Available statistics of private foreign capital inflows report figures only for Czechoslovakia, Hungary, and Poland. By the end of the third quarter 1992, an estimated cumulative direct foreign investment of \$7 billion had poured into Eastern Europe, of which \$4.2 billion was targeted for Hungary. See Perrin, supra note 15, at 89. However, recent trends indicate an increasing hesitancy on the part of foreigners to invest in Hungary because of the slow development of equity markets, itself a product of the slow pace of privatization. See Foreign Investors Cautious on Hungary, Int'l Herald Trib., Jan. 16, 1993, available in LEXIS, Nexis Library, NEWS File. The vast proportion of that direct investment is attributed to Hungarian and Czech bond issuances. A large portion of those bonds were placed with commercial banks, in exchange for relief from syndicated loans that were not being refinanced. See Alice Teichova, Interwar Capital Markets in Central and Southeastern Europe, in Creating Capital Markets in Eastern Europe, supra note 9, at 35. (19.) 1991 Estimates of Direct or Portfolio Equity Investment (in millions of US\$):

Czechoslovakia, Hungary, and Poland	1,400
Latin America	20,400
Malaysia	3,800
Thailand	2,200
Indonesia	1,400
Portugal	3,500
Turkey	3,400

Id. at 35. Direct investment entails investment of capital in physical **assets** or in ownership of a whole enterprise, while portfolio investment involves the **purchase** of securities. Webster's Third New International Dictionary 640, 1768 (1981). As of April 1993, emerging markets accounted for more than 5% of worldwide capitalization, up from less than 2% 20 years earlier. See R. C. Longworth, Emerging Stock Markets Bustling, Chicago Trib., Apr. 18, 1993, at C1. (20.) See generally Jane Perlez, Eastern Europe's Promise Fades, N.Y. Times, Feb. 21, 1993, [sections] 3, at 17 (asserting that inflation rates, political problems in former Yugoslavia, and unstable privatization policies are responsible for the reluctance to invest). (21.) The productivity gap between centrally planned economies and advanced industrial nations may also be attributed to inaccurate pricing, the lack of incentive for managers and workers to improve efficiency, and the distorted allocation of capital and manpower.

See Daniel Gros & Alred Steinherr, Economic Reform in the Soviet Union: Pas De Deux Between Disintegration and Macroeconomic Destabilization 47 (Princeton Studies in Int'l Finance, No. 71, Nov. 1991).

#### Productivity Gaps Between Eastern and Selected Western Countries in 1989

Eastern European Countries (and USSR)	Western Reference Countries	Productivity of East as % of West
Bulgaria	Greece, Portugal, Spain	27%
Czechoslovakia	Austria, Greece, Portugal, Spain	28%
Hungary	Greece, Portugal, Spain	26%
Poland	Greece, Portugal, Spain	21%
Romania	Greece, Portugal	40%
USSR	Greece, Portugal	30%

Alessandro Giustiniani et al., Growth and Catch-up in Central and Eastern Europe: Macroeconomic Effects on Western Countries 10 (International Finance Section, Dept. of Economics, Princeton Univ., No. 186, April 1992). (22.) Gross & Steinherr, supra note 21, at 47; see generally Larence J. Brainard, Strategies for Economic Transformation in Central and Eastern Europe: Role of Financial Market Reform, in Transformation of Planned Economies, supra note 3, at 95-96 (discussing the role of the banking system in the course of privatization in order to lead to efficient capital allocation). (23.) Gros & Steinherr, supra note 21, at 48. (24.) Id. (25.) Id. at 48-49. (26.) Using a conservative savings rate of 20%, economists suggest that Czechoslovakia could finance the investment necessary to reach European Community levels in ten years, Hungary would require twelve years, and Poland would require fifteen years. The Soviet Union would require much more time, or foreign investment of more than \$1300 billion accumulated over fifteen years. Id. at 50. These estimates, however, were derived in 1991 before the realization that income levels would not support projected savings levels due in great part to the slow rate of economic development and high inflation. See Transformation of Planned Economies, supra note 3, at 51-64 (discussing problems associated with privatization of socialist economies, including capital formation). (27.) Other developing nations have also attempted, with mixed results, to develop stock markets, including Brazil, South Korea, Malaysia, Mexico, Nigeria, Pakistan, Philippines, Singapore, Taiwan, and Thailand. See Dickie, supra note 7, at 167. (28.) See generally Scott Powell, Slow Steam Ahead in Debt and Equity, Euromoney, Apr. 1992, supp. at 11-15 (detailing recent advances in Eastern Europe's domestic capital markets). (29.) Creating Capital Markets in Eastern Europe, supra note 9, at 8. The first stock exchange in Central Europe was established in Vienna by a decree of Empress Maria Theresa. The first stock exchange in Europe was established 300 years earlier in Antwerp, followed 100 years later by the Royal Exchange in London. The exchanges in Prague and Budapest preceded the establishment of Berlin's stock exchange. Id. (30.) Id. (31.) See Powell, supra note 28, at 11-15. (32.) Id. at 11. (33.) By 1990 inflation had reached an annual rate of 30%. Creating Capital Markets in Eastern Europe, supra note 9, at 49. (34.) Powell, supra note 28, at 11. (35.) See Hungarian Act VI of 1990 on Issuing and Public Broking of Certain Securities and on Stock Exchange, Hungarian Rules of Law in Force 447 (1990) (creating the legal framework for a stock exchange in Hungary). The Act took effect February 1, 1990. As of April 1992, there were 48 members of the BSE. Powell, supra note 28, at 12. (36.) See The Guide to World Equity Markets, supra note 15, at 617. The

Warsaw Stock Exchange was re-established on April 12, 1991, and trading in the first five privatized companies began on April 16, 1991. Id. at 621. The Prague Stock Exchange reopened on April 6, 1993. Patrick Blum, Prague Exchange to Open Today with Unlisted Market, *Financial Times*, Apr. 6, 1993, at 25. (37.) The minimum initial capital requirements for listing on the BSE is 221.6 million forints. *Creating Capital Markets in Eastern Europe*, supra note 9, at 47. The average exchange rate for July 1992 was 77.49 forints to the U.S. dollar, 74.735 forints to the dollar in 1991, and 63,206 forints to the dollar in 1990. International Monetary Fund, *International Financial Statistics* 266-67 (1993). The real effective exchange rates for the comparable periods were 103.2, 98.6 and 86.9 forints to the dollar, respectively. Id. Furthermore, an issuer must have completed at least one year in business. Only listed securities, as opposed to traded securities having less rigorous requirements, can be traded on foreign official markets. In 1992 the BSE was open for transaction activity only 90 minutes each day. *Creating Capital Markets in Eastern Europe*, supra note 9, at 65. (38.) A BSE index of leading companies started in 1991 with a base of 1000; it rose to 1250 in the first few months before falling to 600 by autumn 1991. Phillip Moore, Hungary: Competition for Capital Likely to Intensify, *Euromoney*, Mar. 16, 1993, supp. at 135. Government issues accounted for 90% of trading. Id. at 136. (39.) Id. at 135. (40.) In 1991, the BSE transactions totaled only one-half of the volume of Hungarian shares on the Vienna Stock Exchange. *Creating Capital Markets in Eastern Europe*, supra note 9, at 65-66. At the end of 1990, of 460 Hungarian companies registered as share companies, 56, or 12%, were issuing or selling shares publicly. Id. at 50. Of this number, only 19 either listed or traded their stock on the BSE. Id. at 48. In April 1992, the number rose only to 21, nine of which also traded on the Vienna Stock Exchange. Nigel Ash, Hungary: The Gearbox Needs an Overhaul, *Euromoney*, Apr. 15, 1992, supp. at 47. In December 1991, Hungary issued its first long-term security, a three-year, floating-rate government bond. It pays the Hungarian 90-day T-bill discount rate plus 2%, currently 37% compared to an inflation rate estimated at about 30% in 1991. At the same time Hungarian Telecommunications Company made two issues of domestic bonds, each carrying a rate of 35% and selling quickly. Powell, supra note 28, at 11. The extent of Hungarian bond market activity mirrored, on a far smaller scale, the record levels in international bond activities in 1991, which reached \$298 billion, compared to \$230 billion in 1990. *Private Market Financing*, supra note 5, at 35. (41.) The Prague Stock Exchange opened on April 6, 1993. Blum, supra note 36, at 25. (42.) The month-to-month inflation rates through 1992 consistently held at below 1%. See Powell, supra note 28, at 13. (43.) The first domestic T-bill auction was held in Czechoslovakia on February 19, 1992. The federal T-bills, pre-separation, carried an annualized yield of 12.6%, while the T-bills issued by the soon-to-be separate Czech Republic carried a 10.7% yield. Id. (44.) In mid-March of 1993, the Czech Republic government said it would stop issuing shares in Czech companies acquired by Slovaks under the mass privatization plan of 1992, whereby shares on a federation-wide basis were distributed through vouchers. *Czechs and Slovaks: Not So Amicable*, *Economist*, Apr. 17, 1993, at 50, 50. Slovaks hold approximately \$870 million of assets that Czechs say belong to them, and the Czechs threatened to seize Slovak assets in the Czech Republic. id. This dispute understandably has forestalled stock market trading. Id. With the major areas of dispute mostly resolved, the Czech Republic's privatization process has been largely successful, with trading of shares in more than 900 privatized companies on the Prague Stock Exchange beginning in June 1993. See Jiri Pehe, *The Czech Republic: A Successful Transition*, RFE/RL Res. Rep., Jan. 1994, at 72-73. (45.) *Warsaw Stock Exchange: Back in the Game*, *The Warsaw Voice*, Nov. 8, 1992, available in LEXIS, World Library, ALLNWS File, at 1. The new Warsaw Stock Exchange is modeled closely after the Paris Bourse. Id. (46.) As of April 1992, 11 stocks were listed on the Warsaw Stock Exchange, a number expected to grow by at least one a month. In 1989, Bank Gospodarstwa Krajowego acted as lead

manager for a bond offering that carried an annual fixed interest rate of 60%. (47.) The Zagreb Stock Exchange began operations on March 27, 1992 with only one product, a DM5 million bond issued on behalf of the Jadranka tourism company that carried a 12% annual yield coupon. Current civil strife in Yugoslavia has effectively precluded and further development of market activity. An Exchange in Embryo - Croatia, *Euromoney*, May 1992, supp. at 30. (48.) Ukraine has experienced a rapid growth of commodity exchanges, trading in anything from women's clothing to raw materials. The first such exchange was founded in November 1990. Shares in companies are traded on five of the Ukrainian exchanges. The larger commodity exchanges are expected to evolve into Western-styled stock exchanges. *Breaking Up is Hard to Do*, *Euromoney*, Jan. 1992, at 22-27. (49.) For a general discussion of the reasons to promote equity financing, see John Floegel, *Equity Financing for Public Corporations: Reasons and Methods to Encourage It*, 138 U. Pa. L. Rev. 1411 (1990). (50.) A bond is a certificate or evidence of debt on which the issuing company or governmental body promises to pay bondholders as specified amount of interest for a specified length of time, and to repay the loan on the expiration date. *Black's Law Dictionary*, supra note 6, at 178. For the purposes of this Article, bond and debt markets are synonymous. For a general discussion of debt financing, see Thomas Lee Hazen, *The Law of Securities Regulation* 829 (2d ed. 1990). (51.) For a general discussion of the effect of inflation on interest rates, see Maurice D. Levi, *International Finance: The Markets and Financial Management of Multinational Business* 47 (1990). (52.) See, e.g., *Creating Capital Markets in Eastern Europe*, supra note 9. In 1991, McDonald's Hungary made a private placement of bonds amounting to 400 million forints with a four-year maturity and an average annual interest rate of 27%, despite Hungary's average inflation rate of 35% in 1991. Powell, supra note 28, at 11. There has been an increase in the last two years, led by Hungary, in the issuance of Eurobonds to pay foreign debt and bolster foreign exchange reserves. See *id.* at 15. In 1991, of the \$1.4 billion was attributed to bond issuances. *Creating Capital Markets in Eastern Europe*, supra note 9, at 35. (53.) A bond is generally considered a junk bond if it is below investment grade as determined by one or more investment rating services. Robert W. Hamilton, *Fundamentals of Modern Business* 456 (1989). (54.) Typical matters voted upon by U.S. corporate shareholders include board of director elections, major acquisitions, and amendments to articles of incorporation. See generally Harry G. Henn & John R. Alexander, *Law of Corporation* 951-1018 (2d ed. 1983) (containing a general explanation of U.S. corporate matters, with specific treatment of shareholders voting rights). (55.) In fact, debt and equity markets compete for domestic savings and foreign capital, particularly as government debt is refinanced and the demands of the corporate sector increase in nations such as Hungary. See Phillip Moore, *Hungary: Competition For Capital Likely to Intensify*, *Euromoney*, Mar. 16, 1993, supp. at 133. (56.) See generally John Vickers & George Yarrow, *Privatization: An Economic Analysis* 171-94 (1988) (discussing issues raised by sale of state assets, including pricing of shares, consequences for wealth distribution, and effect on government finances). (57.) See generally *Privatization, Everybody's Doing It Differently*, *The Economist*, Dec. 21, 1985, at 71-86 (describing methods used by various nations to implement privatization programs). (58.) See Josef C. Brada, *Working Group 3: Creating Capital Markets*, in *Comrades Go Private* 159 (Michael P. Claudon & Tamar L. Gutner eds., 1992). (59.) *Id.* (60.) Privatization, for the most part, began in 1988. For a detailed discussion of the evolution of privatization and economic reform in Hungary, see Tamas Sandor, *Privatization in Hungary: Questions and Problems*, in *Privatization in Central and Eastern Europe* 23-24 (Peter Sarcevic ed., 1992). Hungary had experimented with market economic reforms for more than two decades prior to officially implementing comprehensive privatization between 1988 and 1990. Its private sector had grown slowly but steadily since 1982. See Gerd Schwartz, *Privatization: Possible Lessons from the Hungarian Case*, in *World Development* 1731-32 (Dec. 1991). In 1985, the government introduced a



self-governing organizational structure for state enterprises providing for the coexistence of two types of state-owned enterprise: "self-managed" firms controlled by enterprise councils, and "administratively managed" firms controlled by ministries and other state bodies. *Id.* at 1732. (61.) Hungarian Company Act, Act No. VI of 1988 on Business Organizations, as amended by art. 49, para. 5 of Act No. LXV of 1991 and chap.1 of Act No. LV of 1992. 3 Hungarian Rules of Law in Force 167, 1445 (1992) [hereinafter Company Act]. (62.) See Catherine M. Sokil, Hungary's Economic Transformation, in *Comrades Go Private* 30 (Michael P. Claudon & Tamar L. Gutner eds., 1992). (63.) The Company Act did, however, allow freedom of enterprise whereby anyone, including private persons, could form a business association simply by registering it without approval from the Ministry of Finance. The act is the first legal code that uniformly governs and regulates all forms of business companies or economic associations. *Id.* (64.) *Id.* at 34. (65.) Act No. XIII of 1989 on the Conversion of Economic Organizations and Business Associations (Hung.) [hereinafter Transformation Act]. (66.) See Robert L. Drake, Legal Aspects of Financing in Czechoslovakia, Hungary and Poland, 26 *Int'l Law* 505, 515 (1992). (67.) The SPA was established as the central governing organ for the exercise of owner rights and the privatization of state-owned enterprises. See Act No. VII of 1990 on the State Property Agency and on the Management and Utilization of Property Belonging to its Scope, as amended by Act No. LII of 1990 (Hung.) [hereinafter Hungarian SPA Act]. (68.) Schwartz, *supra* note 60, at 1732. (69.) See generally Ash, *supra* note 40, at 41 (describing the extreme caution with which Hungary has implemented its privatization program). (70.) The test case for SPA-initiated privatization was the stock offering of Ibusz, the Hungarian travel agency, in which more than one-third of the company's shares were sold to the public and listed on the Budapest and Vienna Stock Exchanges. See Moore, *supra* note 55, *supp.* at 135. (71.) See Ash, *supra* note 40, at 41. (72.) Jackson, *supra* note 9, at 62. (73.) See Ash, *supra* note 40, at 41. (74.) See Hungarian SPA Act, *supra* note 67; Hungarian act VIII of 1990 on Protection of Property Entrusted to State Enterprises [hereinafter Hungarian Protection Act]. (75.) Non-SPA-initiated privatization have accounted for approximately six percent of total state-owned property privatizations in the period 1988 through 1991. Moore, *supra* note 53, at 9. (76.) See Ludvik Kopac, Privatization of the State Economy in Czechoslovakia, in *Privatization In Central And Eastern Europe* 57 (Petar Sarcevic ed., 1992). The value of enterprises (large-scale only) scheduled to be sold off in accordance with the Conditions Acts amounts to an estimated \$14.7 billion dollars. See *World Equity Markets*, *supra* note 15, at 610. (77.) Law No. 427 of 15 October 1990, the Act on the Transfer of the State Ownership of Some Property to Other Juridical or Natural Persons. This act provides for 75 regional committees to oversee the privatization of small businesses through auctions. The first round of auctions was reserved only for Czech nationals. See generally Drake, *supra* note 66 (discussing recently enacted laws governing privatization in Czechoslovakia, Hungary, and Poland). (78.) Law No. 92 of 26 February 1991, the Act on Conditions of Transferring State Property to Other Persons [hereinafter Conditions Act]; see Vratislav Pechota, Privatization and Foreign Investment in Czechoslovakia: The Legal Dimension, 24 *Vand. J. Transnat'l L.* 305, 307 (1991). That law required an approved privatization project to be prepared for each enterprise. Such plan is to include the following detailed information:

- 1) description of the enterprise and the accompanying properties; 2) details on the way the state acquired the property; 3) details on any restitution claims by previous owners; 4) valuation of the property; 5) proposed manner of privatization, and 6) details concerning the company which proposed to take over the enterprise.

See Conditions Act, *supra* note 78; see also Drake, *supra* note 66, at 507.

(79.) See Powell, *supra* note 28, at *supp.* 14. As of April 1992, eight million Czechs had purchased these books. *Id.* Approximately two-thirds of

voucher purchasers have given control of their vouchers to a private investment fund. See Paul Sacks, *Privatization in the Czech Republic*, 28 Colum.J. World Bus. 188 (1992). (80.) After initial rejection by its parliament, Poland finally approved a plan to privatize the bulk of state-owned industries and distribute their shares to the public on May 7, 1993. See *Poland Senate Approves Privatization on Industries*, Seattle Times, May 8, 1993, at A5 [hereinafter Poland Senate]. Obstacles to the plan included domestic resentment of foreign control and fears that privatization will result in widespread lay-offs. John Darnton, *Polish Parliament Rejects Bill to Privatize Industries*, N.Y. Times, Mar. 19, 1993, at A3. Under the Polish plan, 60% of the shares in 600 state enterprises will be turned over to 20 mutual funds; workers will be given 15% of the remaining shares and the government treasury will retain 20%. See Poland Senate, *supra*, at A6. Polish privatization has been overseen by the Ministry of Ownership Changes, which has divested shares in state-owned enterprises through public auctions, public offerings, and negotiated sales. See Steven Velkei, *An Emerging Framework for Greater Foreign Participation in the Economics of Hungary and Poland*, 15 Hastings Int'l & Comp.L. Rev. 695, 719-20 (1992). The legal framework for Polish privatization is contained in a series of acts passed by the Polish Parliament in 1990. See Act of 13 July 1990 on the Privatization of State-Owned Enterprises, reprinted in 29 I.L.M. 1226 (1990) [hereinafter Polish Privatization Law]; Act of 9 November 1990 on the Extension of Operation of the Privatization of State-Owned Enterprises Act; Act of 13 July 1990 on the Establishment of the Office of the Minister for Ownership Transformations. In Ukraine, the main privatization program was scheduled to begin in 1993, with both large and small businesses being sold. See *Breaking Up Is Hard to Do*, Euromoney, Jan. 1992, at 22. According to plans, a portion of the shares of each company would be distributed free to Ukrainian citizens. *Id.* Approximately 500 companies that did not require demonopolization were scheduled to be sold off in 1992. *Id.* For the most part, privatization of large enterprises in most of the older former Soviet republics as expected to get under way in 1993 and 1994. See International Monetary Fund, *Economic Review: Common Issues And Interrepublic Relations in the Former U.S.S.R.* (1992). (81.) See Serge Schmemann, *To Each According to His Shares*, N.Y. Times, Dec.14, 1992, at D1, D6.; *Russia Turning Capitalist in its Own Peculiar Way*, Seattle Post-Intelligencer, Feb. 9, 1993, at A4. (82.) See *Russia's New Corporate Raiders*, *Privatization Int'l*, Sept.1993, available in LEXIS, World Library, ALLWLD File. Under another method of privatization, employees can acquire non-voting, preferred shares of stock equal to 25% of firm's value without charge. They would then have the right to purchase common stock equal to 10% of the firm's equity at a 30% discount from nominal value; employers in enterprises with fewer than 200 employees can purchase 20% of equity at a 30% discount and hold voting rights over another 20% of the firm's stock. See *State Program for Privatization of State and Municipal Enterprises in the Russian Federation for 1992*, Decree No. 2980-1 (June 11, 1992), available in LEXIS, Nexis Library, ALLEUR File. The Czechoslovak Plan, on which the Russian Plan was modeled, does not contain a similar reservation of shares for enterprise employees. See Kopak, *supra* note 76, at 62-63. (83.) Schmemann, *supra* note 81, at C1. There is increasing evidence, however, that the managers and employers of Russian firms are either seeking to acquire the maximum possible control of an enterprise's stock by purchasing more than their 51% allocated share in the secondary market, or are acting on behalf of outside investors to whom they have committed to sell to their 51% interest. See Judith Thornton, *Privatization and Financial Markets in the Russian Far East* (1993) (unpublished manuscript, on file with the Univ. of Wash. Dept. of Economics); *Russia's New Corporate Raiders*, *supra* note 82. (84.) In Hungary and Poland, investment banks and international accounting firms have been engaged for a fee to facilitate the conversion process. Jackson, *supra* note 9, at 60. See also Teresa B. Mastrangelo & Robert J.F. McPhail, *Saving Those Going Private: The Role of Accountancy in Privatization*, 28 Colum.J. World Bus. 206 (1993). (85.) As

of summer 1992, 75% to 90% of the industries in Hungary and Poland were still state-owned. See Moore, *supra* note 55, at 12. (86.) For example, in the first three quarters of 1992, only 18 equity sales of privatized enterprises occurred in Poland. Only one of the sales was made by a public offering. See Progress Report on Privatization, Polish News Bulletin, Dec. 22, 1992, available in LEXIS, Nexis Library, CURRNT File. (87.) Czechoslovakia and Poland have adopted a combination of the two approaches, while Hungary favors the sale approach. See Gros & Steinherr, *supra* note 21, at 7. (88.) See, e.g., *id.* at 12. (89.) *Id.* (90.) For a more detailed discussion of the arguments against a partial or complete giveaway shares, otherwise known as the free transfer model, see David P. Ellerman et.al. Privatization Controversies in the East and West, in *Comrades Go Private*, *supra* note 62, at 123. (92.) See Pechota, *supra* note 78, at 307. (93.) *Comrades Go Private*, *supra* note 62, at 2. (94.) The deputies of Poland's parliament who initially voted against the recent privatization plan primarily opposed foreign control of Polish companies. See Polish Parliament Rejects Bill to Privatize Industries, *supra* note 80, at A3. (95.) *Id.*; see also Creating Capital Markets in Eastern Europe, *supra* note 9, at 35. In fact, 60% to 80% of the market activity on the Budapest Stock Exchange is attributable to foreign investors. See Powell, *supra* note 28, at 12. (96.) Pechota, *supra* note 78, at 307. (97.) See Dickie & Layman, *supra* note 7, at 168. (98.) For example, in Czechoslovakia, approval from the Ministry of Civil Engineering and Construction is required for foreign investment in most engineering firms. See Drake, *supra* note 66, at 507. The Polish Foreign Investment Law, although enacted to substantially reduce government intervention in foreign investment, retains the government's authority to approve foreign investment in areas of the economy that have traditionally involved state interests, including harbors, airports, real estate brokering, defense industry, and the wholesale trade of imported consumer goods. See Polish Foreign Investment Law, art. 4(1) (1991), reprinted in 30 I.L.M. 871, 875-78 (1991). The Amended Hungarian Foreign Investment Law eliminates any government authorization for foreign investment unless a foreign investor purchases an interest in a privatized enterprise with consideration other than capital. Compare Act XXIX of 1988 on the Amended Hungarian Foreign Investment Law, [sections] 9(2), reprinted in 2 H.R.L.F. 305, 307 with Act XCVIII of 1990 on the Amendment to Act XXIX of 1988 on Investments by Foreigners in Hungary, para. 1, reprinted in 2 H.R.L.F. 190, 190. (99.) See Hungarian Act XCVIII, *supra* note 98, [sections] 13(2), 2 H.R.L.F. 190 (repealing prohibition against acquisition of a controlling interest in a domestic company by a foreign controlled company). Czech law allows foreigners to hold shares without any substantive restrictions except that such shares must be registered. See Act VI on Business Organizations; see also Polish Foreign Investment Law, *supra* note 98, arts. 1, 3, 4, 6. The Polish Foreign Investment Law, however, permits the Ministry of Ownership Charges to establish a ratio between Polish and foreign parties' share capital of a company or the ratio between votes at the shareholders' or partners' meetings for the "protection of state interests." *Id.* art. 16(2). (100.) See, e.g., Hungarian SPA Act, *supra* note 67, art. 25(2); Hungarian Protection Act, *supra* note 74, art. (1)(1) (limiting government involvement by requiring government authorization for the proper valuation of state assets). Cf. Amended Hungarian Foreign Investment Law, *supra* note 98 (containing no such provision). The Polish Foreign Investment Law, however, specifically repealed all provisions of the Polish Privatization Law pertaining to foreign investment and thereby became the sole reference for rules pertaining to foreign ownership of any enterprise in Poland. See Polish Foreign Investment Law, *supra* note 98, art. 33, reprinted in 30 I.L.M. at 881. (101.) See, e.g., The Presidential Emergency Decree for Economic Stability and Growth of 1972. Corporations in Korea are required to distribute publicly at least 30% of the total number of shares outstanding; controlling shareholders are encouraged to lower their shareholdings from 51% to 30%. See Chung, *supra* note 8, at 38; Dickie & Layman, *supra* note

7, at 170. (102.) See Chung, *supra* note 8, at 38-39. (103.) *Id.* (104.) Korean Act Relating to Capital Market Support art. 7 (1967). (105.) Dickie & Layman, *supra* note 7, at 171. (106.) Chich-Heng Kuo, *International Capital Movements and the Developing World - The Case of Taiwan* 172 (1991). (107.) For discussion of overvaluation, see Powell, *supra* note 28, at 12. This phenomenon contrast with wildcat or spontaneous privatizations, where assets are sold at ridiculously undervalued prices. Local citizens tend to find the sale of shares to foreigners palatable if measures are in place to prevent the shares from being sold too cheaply. No Eastern European government wants to create an environment, that might allow the wildcat privatizations that occurred in Hungary at the beginning of its privatization efforts. See Sokil, *supra* note 62, at 30; Schwartz, *supra* note 60, at 1732. 1734. In one of example of undervaluation, the Polish government was recently accused of egregiously undervaluing the shares of Bank Slaski, whose jumped in one day from an initial offering price of \$23 to \$313. See Polant Faulted on Sell-off, *Wall St. J.*, Jan. 27, 1994, at A10. (108.) Hungarian and Polish privatization authorities have in fact utilized the services of investment banks and international accounting firms. See *Creating Capital, Markets in Eastern Europe*, *supra* note 9, at 60; Mastrangelo & McPhail, *supra* note 84. (109.) See Schwartz, *supra* note 60, at 1733. In comparison, on the Ukraine Stock Exchange, the Western concept of equity dilution has not taken hold, as evidenced by the continued trading of Inco Bank shares at the initial par price of 1000 rubles notwithstanding subsequent issuances of new shares. See *Breaking Up Is Hard To Do*, *supra* note 80, at 26. (110.) Hungary has included a provision in its privatization law intended to monitor proper valuations in a small proportion of transactions. The government must approve any foreign non-financial contribution for more than 10% of the assets of a privatized enterprise, where the amount of the contribution exceeds 20 million Hungarian forints. Hungarian Protection Act, *supra* note 74, para. 1(1)(a). This provision, neither included nor referenced in the Amended Hungarian Foreign Investment Lay, services as another reason to read privatization and foreign investment laws in conjunction with each other. (111.) Powell, *supra* note 28, at 13. (112.) Coercing foreign companies into offering equity shares can backfire, however. For example, when pressed in the late 1970s to take on local shareholders, both Coca-Cola and IBM ceased doing business in India. See Dickie & Layman, *supra* note at 146 47. Most foreign-owned companies operating in developing countries resist calls to go public that are unaccompanied by incentives. See Chung, *supra* note, 8, at 39. (113.) See generally Shahrokh Saudagaran, *An Empirical Study of Selected Factors Influencing the Decision to List on Foreign Stock Exchanges* (1986) (unpublished Ph.d. dissertation, University of Washington). (114.) Generally, the time and expense involved in complying with foreign stock exchange, and regulatory registration requirements varies from country to country. Standard transaction costs include prospectus costs and lawyer and accountant fees. (115.) See *World Equity Markets*, *supra* note 15, at 612. (116.) For a detailed discussion on how reciprocal disclosure requirements work, see U.S. Sec. and Exch. Comm'n, *Internationalization of the Securities Markets* 74-87 (July 27, 1987). (117.) For example, a number of foreign financial funds, including those from international agencies, have been established in the region. "In 1991, the Boston-based Pioneer Group filed the first application to Poland's Securities Exchange Commission for permission to set up a fund aimed at ultimately investing up to \$100 million from Polish investors." *Creating Capital Markets in Eastern Europe*, *supra* note 9, at 66. (118.) A broad market for equity shares is necessary for the efficient allocation of capital because it ensures efficient valuation of shares. See, David P. Ellerman et al., *Privatization Controversies in the East and West*, in *Comrades Go Private*, *supra* note 62, at 117, 125-29. (119.) Richard L. Holman, *Free Markets Opposed in Poll*, *Wall St. J.*, Feb. 25, 1993, at A10. (120.) *Id.* The survey polled 18,500 people in 18 countries in Central and Eastern Europe and the former USSR. (121.) See *Creating Capital Markets in*

Eastern Europe, *supra* note 9, at 9. (122.) See, e.g., Manohar Krishna Shrestha, *Securities Exchange Centre Problems and Prospects* (1986) (discussing problems faced by stock exchange in Nepal). (123.) Bruce Lloyd, *The Role of capital Markets in Developing Countries*, in *Intereconomics* 96 (1977). (124.) For a concise discussion of the mobilization of domestic savings for investments, see Hungary: Competition For Capital Likely to Intensify, *Euromoney*, Mar. 16, 1993, at 133. (125.) For example, in the area of debt financing, the Polish government plans to issue one-to-three-year **floating rate notes** in small denominations particularly to attract small investors. See Powell, *supra* note 28, at 14. (126.) For example, in Korea individual investors may pay monthly installments for stocks they plan to purchase or have already purchased. See Dickie & Layman, *supra* note 7, at 178. In the recent issue of *Danubius*, a Hungarian hotel group, investors were asked only to put down 10% of the issue price, with an additional 40% to be paid after six months and the balance financed through cheap credit. See Hungary: Competition For Capital Likely to Intensify, *supra* note 1 24, at 136. (127.) See Schwartz, *supra* note 60, at 1735. (128.) *Id.* (129.) For a detailed discussion of employee ownership of shares in privatized companies, see Privatization in Central and Eastern Europe, *supra* note 76, at 33-34 (Hungary). See also Mario Nuti, Privatization of Socialist Economies: General Issues and the Polish Case, in *Transformation of Planned Economies*, *supra* note 3, at 62 (Poland). (130.) For example, a recent public sale of previously state-owned property in Russia guaranteed workers in the Bolshevik bakery 51% ownership. See *To Each According to His Shares*, *supra* note 81, at D1. (131.) See Pechota, *supra* note 76, at 3 12. Similarly, Hungarian workers are generally offered no price concessions for shares in their companies. When Ibusz was privatized, the only concession granted to workers was the ability to pay for their shares in installments. See Schwartz, *supra* note 58, at 1735. Hungarian law provides employees with tax and credit preferences so they can extend payments for shares. See *Development of Employees' Share Ownership*, Summary of Word Broadcasts, Mar. 18, 1993, available in LEXIS, Nexis Library, NEWS File (Hungarian Telegraph Agency broadcast, Mar. 12, 1993). In comparison, Croatian employees were generally given the first right to buy shares at up to a 50% discount. See *An Exchange in Embryo - Croatia*, *supra* note 47, at 34. (132.) See Polish Law on Privatisation of State-Owned Enterprises, art. 24, translated in *Privatization in Central and Eastern Europe*, *supra* note 76, at 186. However, the plan to implement the legislation, approved by the Polish parliament, provided for the reservation of 15% of the shares in an enterprise for workers. See Patricia Koza, *Government Wins Privatization Vote*, UPI, Apr. 30, 1993, available in LEXIS, World Library, CURNWS File. (133.) Taiwan, for example, opened its market to foreign investors, despite sufficient domestic savings to support its stock market, simply to enlarge the stock exchange's scale of operations. See Kuo, *supra* note 106, at 172. (134.) See generally Chung, *supra* note 8, at 37-38. (135.) Foreign concerns with the underlying economic situation in the region are justified in some cases. For instance, Poland and Bulgaria defaulted on their debts. *Creating Capital Markets in Eastern Europe*, *supra* note 9, at 40. Nevertheless, in March 1991, Poland obtained 50% forgiveness of its debt from the Paris Club of official creditors. *Id.* Many former Soviet republics have effectively defaulted on trade credits and other short-term debt commitments and are in the midst of a liquidity crisis. *Id.* Albania is one of the few countries ever to have defaulted on its spot currency transactions. *Id.* (136.) Hungary has been particularly successful. During 1990 to 1991, 28% of new Hungarian businesses were formed with the participation of foreign capital. *Id.* at 50. Also, foreign investors constitute 60% to 80% of trading activity on the Budapest Stock Exchange. See Powell, *supra* note, 28, at 12. This foreign involvement may be due to the fact that Hungary has been steadfast in servicing its \$21.3 billion debt. *Creating Capital Markets in Eastern Europe*, *supra* note 9, at 40. Czechoslovakia, which has also managed to attract relatively high levels for foreign investment, has retained good

credit standing from its conservative approach to debt financing. *Id.*; but see *supra* note 76 (discussing the situation in Slovakia). Poland, which surmased an intimidating debt load, has received relatively small foreign capital inflows, mostly in the form of joint ventures, amounting to \$200 million by March 1990. See Nuti, *supra* note 3, at 64. (137.) See Steven A. Crown, *Western Investors with Eye on Russia Should be Cautious*, *Seattle Post-Intelligencer*, Dec. 30, 1992, at A7. (138.) *Id.* (139.) *Id.* For a first-hand perspective on this problem, see Alfred E. Belcuore, *Meeting the Founders: Russians and Kazakhs Work for Democracy*, 25 *Law & Pol'y Int'l Bus.* 461 (1994). (140.) *Creating Capital Markets in Eastern Europe*, *supra* note 9, at 44. (141.) See text accompanying *supra* note 16. (142.) See Dickie & Layman, *supra* note 7, at 169-70. (143.) Even in Hungary, which began market economic reforms twenty years ago under the Communist regime, two-thirds of the work force were government employed and more than 75% of the country's assets were still owned by the state in 1991. See Philip R. Lochner, *Planning for Spontaneity: The Creation of Free Markets in Eastern Europe*, 17 *Brooklyn J. Int'l L.* 363, 368 (1991). (144.) Arguably, other laws, such as exchange regulations and bankruptcy laws, also comprise an integral part of the infrastructure, but they tend to emanate from and supplement these four basic sets of laws. (145.) Hungary's company law is typical of Eastern European laws addressing business organizations. See *Company Act*, *supra* note 61, at 3. The company law in Hungary sets forth six forms of legal business entities. Of the six, "companies limited by shares" are best structured for public stock offerings, insofar as shares of stock represent company, capitalization. *Id.* at 71. The law incorporates a number of corporate traits that allow the companies to operate as publicly held companies in accordance with Western standards. These traits include limitations on shareholder liability and the right of shareholders to elect the board of directors, a supervisory board, and an auditor of the company. *Id.* at 78. Shares may be issued at a premium and may take bearer or registered form, although foreigners can hold only registered shares. *Id.* at 72-73. Notably, shareholders are liable only to the extent of their original investment. *Id.* at 70. Laws governing business organizations are incorporated into the Czechoslovakian Commercial Code, which went into effect January 1, 1992. The new Commercial Code replaced or incorporated the Economic Code, the Joint Stock Companies Act, the Foreign Trade Code, and the Act on Enterprises with Foreign Property Participation. Czech Commercial Code, Act No. 513, ch. 2, [subsections] 56-260, translated in *Digest of Commercial Laws of the World* 93-101 (L. Nelson ed., 1992) [hereinafter *Czech Commercial Code*].

Of the various forms of business the laws regulate, the joint stock company, appears most similar to a Western corporation that can offer its shares publicly. A joint stock company is a company whose capital is divided among certain number of shares of certain nominal value. The shareholder does not bear liability for the obligations of the company. Shares are registered as bearer or registered shares. More than one person may own shares, and all shareholders are entitled to a portion of the company profits. The highest body of the joint stock company is the general meeting of shareholders. *Id.* (146.) In the United States, Regulation S-K specifies the items of non-financial information required to be disclosed in a prospectus. See *Adoption of Disclosure Regulation*, *Securities Act Release No. 5893*, 13 *Sec. Dock.* 1217 (Dec. 23, 1977); see generally 2 *Louis Loss & Joel Seligman Securities Regulation* 620-87 (1989) (discussing data requirements of the Sec's Registration Statement and Prospectus as set forth in Regulation S-X). See *Adoption of Disclosure Regulation*, *Securities Act Release Nos. 6233 & 6234*, 20 *Sec. Dock.* 1155, 1156 (Sept. 2, 1980). (147.) See, e.g., Council Directive 80/390, 1980 O.J. (L 100) 1 (*Listing Particulars Directive*); Council Directive 89/298, 1989 O.J. (L 124) 8 (*Public Offering Directive*). (148.) Hungary's basic securities law, which attempts to establish the legal framework for stock exchanges, went into effect on February 1, 1990, Act VI of 1990 on the Public Offering of Securities and the Stock Exchange, H.R.L.F. (May 1, 1990) [hereinafter

Hungarian Securities Act], translated in U.S. Dep't of Com., Central and Eastern European Legal Materials: Hungary (1990). Public offering require a prospectus that sets forth information regarding management, business operations, financial data not more than six months old and certified by auditors, and risk factors, among other things. Before a company can issue shares to the public, the offering prospectus must be approved by the Securities Supervisory Board. Id.; see also Drake, *supra* note 66, at 516.

Poland's law to regulate securities activities, adopted by the Polish Parliament on March 22, 1991, contains similar provisions. See Polish Act on Public Trading of Securities and Trust Funds (Oct. 9, 1991 ) [hereinafter Polish Securities Act], translated in U.S. Dep't of Com., Central and Eastern European Legal Materials: Poland (1992). Poland's securities law requires companies admitted to trading on the Warsaw Stock Exchange by the Polish Securities Commission to supply a prospectus that complies with the requirements drawn up by the Council of Ministers. The required information is intended to allow investors to "asses the assets of the issuer and its financial resources, prospects of development, profits and losses and the rights associated with securities which are traded on the market." Id.

The laws regulating securities transactions in Czechoslovakia are still in their embryonic stage. Since the Prague Stock Exchange opened in April 1993, these laws have yet to be tested. Prior to separation, the Czech Federal Assembly enacted a law that purports to be a securities law, but regulates only the issuance of bonds and other debentures. See Act No. 528 of the Foreign Exchange Act (1990), translated in 2 Central and Eastern European Legal Materials 530 (V. Pechota ed., 1990). Legislation addressing other area of securities trading, particularly stock issuances and the establishment and operation of stock exchanges, was finally adopted in 1992 both by the Czech Republic and the federal government. See Czech Republic, East Eur. Bus. L., Mar. 1993, at 3. The new laws purportedly conform with relevant European Community directives. See World Equity Markets, *supra* note 15, at 612. These laws still fail to address some key areas of stock trading, most notably takeovers. See Large Scale Privatization: Some Important Features for Foreign Investment, East Eur. Bus. L., Apr. 1993, available in LEXIS, Nexis Library, PAPERS File. (149.) See James F. Strother, The Establishment of Generally Accepted Accounting Principles and Generally Accepted Auditing Standards, 28 Vand. L. Rev. 201 (1975). (150.) See generally International Capital Markets, *supra* note 12, (analyzing structural changes and related policy issues in financial markets.) (151.) See Group of Thirty, Clearance and Settlement Systems in the World's Securities Markets (1989). The Group of Thirty represented an international initiative to harmonize clearance and settlement procedures in industrialized and developing countries. Its recommendations were to be implemented by the end of 1992. (152.) For example, trades are generally settled within five days in the United States. See International Capital Markets, *supra* note 12, at 24. In some markets, settlement may take several weeks. Group of Thirty, *supra* note 151, at 1. (153.) Group of Thirty, *supra* note 151, at 69. (154.) For example, the International Monetary Fund has discerned the need in the former republics to overhaul the clearing system that has become segmented since the dissolution of the USSR. See International Monetary Fund, Economic Review: Common Issues and Interrepublic Relations in the Former USSR (1992). (155.) Creating Capital Markets in Eastern Europe, *supra* note 9, at 48. (156.) Id. (157.) Dematerialization refers to the trade of paperless securities. (158.) World Equity Markets, *supra* note 15, at 613. (159.) See International of the Securities Markets, *supra* note 116, at 18. (160.) Dickie & Layman, *supra* note 7, at 178. (161.) Id. (162.) See Hungarian Securities Act, *supra* note 148; Creating Capital Markets in Eastern Europe, *supra* note 9, at 48. The National Bank of Hungary, however, must also authorize Hungarian issuers to trade their stock outside the country and foreign issuers to trade stock in Hungary. Id. (163.) See Creating Capital Markets in Eastern Europe, *supra* note, 9, at 48. In Poland, the Polish Securities Act provides

the legal basis for the establishment of a securities commission to oversee the Warsaw Stock Exchange and securities markets. See Polish Securities Act, *supra* note 148; see also *The Warsaw Stock Exchange: Back in the Game*, *The Warsaw Voice*, Nov. 8, 1992, at 1, available in LEXIS, World Library, ALLNWS File. (164.) Pechota, *supra* note 78, at 319 n.37. To protect investors, draft legislation provides for a supervisory body based upon the U.S. Securities and Exchange Commission. See *World Equity Markets*, *supra* note 15, at 612. (165.) See Evelyn Iritani, *Taking Stock in Russia - A High Risk Investment*, *Seattle Post-Intelligencer*, Apr. 9, 1993, at C1. (166.) Capital flight also may be defined as "the component of private capital outflows [from a nation] resulting from attempts to exceptional sacrifices on rates of return [in that nation]." Exchange and Trade Relation Dep't of the Int'l Monetary Fund, *Private Market Financing for Development Countries* 29 (1991). Flight, should be distinguished from normal capital outflows related to higher interest rates of return including foreign bond and portfolio investments, overseas commercial bank lending, and foreign bond investment. For purposes of this Article, capital flight includes all flight of capital from a nation, including a normal flight. (167.) If they anticipate currency devaluation, whether by government action or depreciation, investors with stock and dividends payable in the domestic currency those assets into another currency, gold, or both. In this way, investors avoid any exchange rate losses that might outweigh expected profit. The volatility of exchange rates in emerging markets, particularly where currency is depreciating at extraordinary rates, requires that the return on the underlying asset outweigh the currency's depreciation. See Michael R. Sesit, *Currency Traps in Emerging Markets*, *Wall St. J.*, Mar. 15, 1993, at C1. (168.) Speculation is the deliberate undertaking of a risky venture with the hope of making a profit from exchange rate movements. See Levi, *supra* note 51, at 123-24. (169.) John T. Cuddington, *Capital Flight: Estimates, Issues and Explanations*, 58 *Princeton Stud. Int'l Fin.* 10-12 (1986). (170.) See *id.* at 14-15; Donald R. Lessard & John Williamson, *Capital Flight and Third World Debt* (1987). (171.) For a more detailed explanation of the relationship between interest and exchange rates, see Levi, *supra* note 51, at 107-08. (172.) See *id.* (173.) See generally Benu Varman-Schneider, *Capital Flight From Developing Nations* (1991) (explaining overall borrowing decisions of developing countries and defining, measuring, and explaining the phenomenon of continual capital exportation). (174.) See Cuddington, *supra* note 169, at 13. (175.) However, it cannot be categorically assumed that the bulk of capital resources, if retained domestically, would be allocated to growth-inducing investment. See generally Lessard & Williamson, *supra* note 170, at 201 (1987) (examining policies that impact on capital exchanges). (176.) See Cuddington, *supra* note 169, at 33. Some scholars believe, however, that capital controls intended to stem the outflow of money generally are ineffective. See, e.g., Dickie & Layman, *supra* note 7, at 29. (177.) See Lessard & Williamson, *supra* note 170, at 21. (178.) See *id.* (179.) Articles of Agreement of the International Monetary Fund, arts. VI(3) & VIII (1988) (as amended), reprinted in John H. Jackson & William J. Davey, *Legal Problems of International Economic Relations* 109, 136-37 (Supp. 1989). Although the IMF generally obligates its members not to impose restrictions on payments or transfers for current account transactions and not to engage in discriminatory currency arrangements, the transitional arrangements of Article XIV of the IMF Agreement permit about 100 developing nations to engage in discriminatory foreign exchange controls and implement capital flight restrictions. Articles of Agreement of the International Monetary Fund, *supra*, art. XIV. (180.) See Lessard & Williamson, *supra* note 170, at 235. (181.) See World Bank, *Report to the Development Committee and Guidelines on the Treatment of Foreign Direct Investment* (1992), reprinted in 31 *I.L.M.* 1363 (1992). While explicitly aimed at encouraging foreign direct investment, the guidelines incidently apply also to portfolio investment. *Id.* Not binding on World Bank members, the guidelines are meant to be "soft law" that does not rise to the level



of a formal international agreement. Id. (182.) Specifically, the guidelines call for World Bank members, which include Hungary, Poland, the Czech Republic, and Slovakia, to apply national treatment to foreign investment and remove any impediment which has the effect of discouraging foreign investment. Id. art. III. In addition to allowing the full repatriation of profits and liquidated investments, the guidelines call upon nations to "promptly issue licenses and permits" to allow foreigners to invest in their jurisdiction. Id. arts. III(5) & (6). Like the IMF Agreement however, the guidelines condone an exception to full repatriation "in exceptional cases where the State faces foreign exchange stringencies [sic], but "such transfer[s] may as an exception be made in installments within a period which will be as short as possible and will not in any case exceed five years from the date of liquidation or sale." Id. art. III(6). (183.) Amnesty, the excuse of past exchange control and tax violations, may stimulate inflows of foreign exchange and, to a lesser degree, broaden the tax base. See Private Market Financing, supra note 5, at 31. (184.) Since exchange rate risk is a prima factor motivating capital flight, countries may allow domestic assets including bank deposits and bonds to be denominated in a foreign currency. Id. at 32. Yugoslavia has allowed such foreign-denominated instruments. Id. Ultimately, monetary policy issues may dissuade this practice. (185.) Additionally, an increasing number of developing nations are issuing foreign-denominated securities, particularly Eurobonds. See id. (186.) See Hungarian Foreign Investment Law, supra note 98, art. 32(1); Polish Foreign Investment Law, supra note 98, arts. 25(1), 26(3)(1), reprinted in 30 I.L.M. at 883. Poland's old investment law allowed only 15% of local currency profits to be repatriated into hard currency. David Kennedy & David Webb, Integration Eastern Europe and the European Economic Communities, 28 Colum. J. Transnat'l L. 633, 636 (1990). Czechoslovakia passed similar legislation. See Enterprises with Foreign Property Participation Act of April 19, 1990, art. 20 [hereinafter Czech Foreign Participation Act], reprinted in 29 I.L.M. 1047, 1052 (1990). However, a Czechoslovakian only if it has sufficient foreign funds. Id. art. 20(2), reprinted in 29 I.L.M. at 1052. (187.) See, e.g., Treaty Between the United States of America and the Czech and Slovak Federal Republic Concerning the Reciprocal Encouragement and Protection of Investment, art. V, reprinted in U.S. Dept. of Commerce Central & Eastern European Legal Texts, Oct. 21, 1991 [hereinafter U.S.-Czech Foreign Investment Treaty]. Specially, that treaty does not contain the rule set forth in article 20 of the Czechoslovakia only if it adequate convertible currency earnings. Although Poland negotiated a similar treaty with the United States that the U.S. Senate ratified on January 1, 1992, the Polish Sejm, its legislative body, has not yet ratified it. See Treaty Between the United States of America and the Republic of Poland Concerning Business and Economic Relations, S. Doc. No. 18 101st Cong., 2nd Sess. (1990). Negotiations to consummate foreign investment treaty between Hungary and the United States have stalled due to Hungary's desire not to afford the United States as favorable treatment as the European Community, to which it aspires to become a member. See U.S.-Hungary Investment Treaty Stalled, But Business Interest Remains Strong, Int'l Trade Daily (BNA), Apr. 28, 1992, available in LEXIS, Nexis Library, ALLEUR File. (188.) See, e.g., Hungarian Investment Law, supra note 98, art. 1(2); Polish Foreign Investment Law, supra note 98, art. 22; U.S.-Czech Foreign Investment Treaty, supra note 187, art. III. The problem associated with guarantees is determining convertibility. Although the guarantee requires compensation for any expropriated investment in the currency of the original investment at the prevailing market rate of exchange, determining that exchange rate in countries that do not yet have freely convertible currencies raises difficulties. (189.) See Eastern Europe Retains Barriers to Investment, Investment, Eximbank Official Says, Daily Rep. for Executives, Aug. 12, 1992, available in LEXIS, Europe Library, ALLEUR File. The slow pace of privatization and the lack of an established banking system are among the primary barriers preventing Eastern European countries from becoming fully

integrated with the world economy, according to the Vice-Chairman of the U.S. Export-Import Bank. Id. (190.) See supra text accompanying notes 16-17. (191.) See Jane Perlez, Polish Cabinet Falls Over Tight Budget, N.Y. Times, May 29, 1993, at 3. The one-year-old government of Prime Minister Hanna Suchocka collapsed on May 29, 1993, when it lost a no-confidence vote called to protest her tight budget policies. Id. (192.) See, e.g., Joel Havemann, One Europe: The Dream of Unity, L.A. Times, Feb. 4, 1992, at 1; Alan Riding, European Community Sets Terms For Six Former Soviet Allies To Join, N.Y. Times, June 23, 1993, at A8; Anne Wagner-Findeisen, From Association to Accession - An Evaluation of Poland's Aspirations to Full Community Membership, 16 Fordham Int'l L.J. 470 (1992-93); Michael Spector, The European Community's Expansion Mechanism and the Differing Approaches of EFTA and Eastern Europe to Community Membership, 25 Law & Pol'y Int'l Bus. 335 (1993). (193.) For example, negotiations to consummate a foreign investment treaty between Hungary and the United States stalled to Hungary's reluctance to afford other nations as favorable treatment as members of the European Community. See U.S.-Hungary Investment Treaty Stalled, supra note 187. (194.) For an analysis of some of the problems associated with a single European stock market, see Doreen McBarnet & Christopher Whelan, International Corporate Finance and the Challenge of Creative Compliance, in The Internationalization of Capital Markets and Regulatory Response 129, 135-36 (John Fingleton ed., 1993). (195.) See Matthew Valencia, Eastern Europe: Investment Funds - The Next Generation, Euromoney Central European, Mar. 1, 1993, available in LEXIS, Europe Library, ALLEUR File; Michael R. Sesit, New Index Fund Sails For Emerging Markets, Wall St. J., April 10, 1993, at C1.

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**Industry Codes/Names: GOVT Government and Law; INTL Business, International**

**Descriptors: Stock-exchange--Laws, regulations, etc.; Capital market--Laws, regulations, etc.;**

**Privatization--Analysis**

**Geographic Codes: EE**

**Product/Industry Names: 6231 Security and commodity exchanges**

**File Segment: LRI File 150**

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